SAFETY PRECAUTIONS

SERVICE WARNING

Only qualified service technicians who are familiar with safety checks and guidelines should perform service work. Before replacing parts, disconnect power source to protect electrostatically sensitive parts. Do not attempt to modify any circuit unless so recommended by the manufacturer. When servicing the receiver, use an isolation transformer between the line cord and power receptacle.

SERVICING THE HIGH VOLTAGE AND CRT

Use EXTREME CAUTION when servicing the high voltage circuits. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver ground and CRT anode lead. DO NOT lift the CRT by the neck. Always wear shatterproof goggles when handling the CRT to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering X-ray radiation. In solid-state receivers and monitors, the CRT is the only potential source of X-rays. Keep an accurate high voltage meter available at all times. Check meter calibration periodically. Whenever servicing a receiver, check the high voltage at various brightness levels to be sure it is regulating properly. Keep high voltage at rated value, NO HIGHER. Excessive high voltage may cause X-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value. When troubleshooting a receiver with excessive high voltage, avoid close contact with the CRT. DO NOT operate the receiver longer than necessary. To locate the cause of excessive high voltage, use a variable AC transformer to regulate voltage. In present receivers, many electrical and mechanical components have safety related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer. Check repaired area for poorly soldered connections, and check entire circuit board for solder splashes. Check board wiring for pinched wires or wires contacting any high wattage resistors. Check that all control knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.

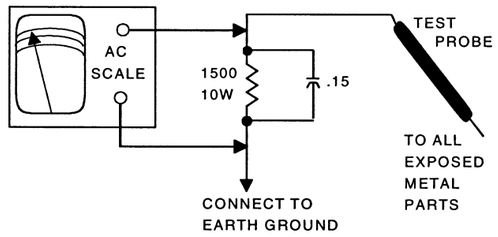
SAFETY CHECKS — FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point. Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.



HORIZONTAL OSCILATOR DISABLE TEST

Connect a variable DC power supply to the cathode of D531 and ground. Start low and increase the DC voltage. The horizontal should lose sync when the DC voltage reaches about 26.8V. If the horizontal fails to lose sync, horizontal oscillator disable circuit should be repaired.

The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by SAMS Technical Publishing as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to SAMS Technical Publishing by the manufacturers of the specific type of replacement part listed.

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SET 4540
MODELS CT-27SF35W, CT-27XF35CW (CHASSIS AMEDP323)
PANASONIC

PHOTOFACT® *Technical Service Data*

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PANASONIC

Models CT-27SF35W, CT-27XF35CW (Chassis AMEDP323)

Representative Model

Essential coverage for servicing a television receiver...

- **Schematics**
- **Component locations**
- **Parts list**

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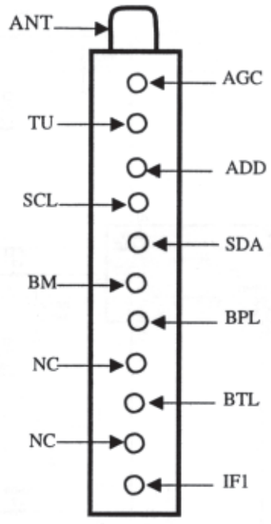
MAIN TUNER INFORMATION

MAIN TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
AGC	4.5V	5.4V	4.5V
TU	1.0V	4.2V	4.5V
ADD	0V	0V	0V
SCL	4.3V	4.3V	4.3V
SDA	4.3V	4.3V	4.3V
BM	8.8V	8.8V	8.8V
BPL	5.0V	5.0V	5.0V
NC	0V	0V	0V
BTL	4.2V	7.4V	7.7V
NC	0V	0V	0V
IF1	0V	0V	0V

NOTE: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14

MAIN TUNER TERMINAL GUIDE



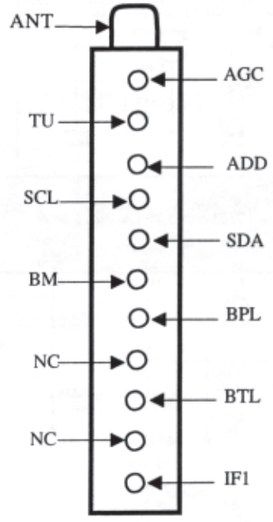
PIP TUNER INFORMATION

PIP TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
AGC	4.5V	5.4V	4.6V
TU	1.0V	4.1V	4.6V
ADD	5.0V	5.0V	5.0V
SCL	4.3V	4.3V	4.3V
SDA	4.3V	4.3V	4.3V
BM	9.0V	9.0V	9.0V
BPL	5.0V	5.0V	5.0V
NC	0V	0V	0V
BTL	4.2V	7.3V	7.8V
NC	0V	0V	0V
IF1	0V	0V	0V

NOTE: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

PIP TUNER TERMINAL GUIDE



MISCELLANEOUS ADJUSTMENTS

NOTE: This receiver employs digital customer controls. All adjustments are at normalized position unless otherwise indicated.

HIGH VOLTAGE CHECK

Tune in a picture. Connect a high voltage probe to CRT anode. High voltage should read between 26kV to 29kV.

VIDEO LEVEL

NOTE: Do not adjust unless R115 has been replaced or misadjusted.

Tune in a color bar pattern with 100 IRE white and 87.5% modulation. Connect oscilloscope to pin 6 of connector A21. Adjust R115 for 1.0Vp-p ±.1Vp-p. Perform sub contrast (B3) adjustment, refer to the Sub Adjustments section of Miscellaneous Adjustments.

CONVERGENCE

Connect a signal generator to antenna terminals and tune in a dot pattern. Adjust the 4-pole magnets to converge the red and blue dots at the center of the screen. Adjust the 6-pole magnets to converge the red/blue dots over the green dots at the center of the screen.

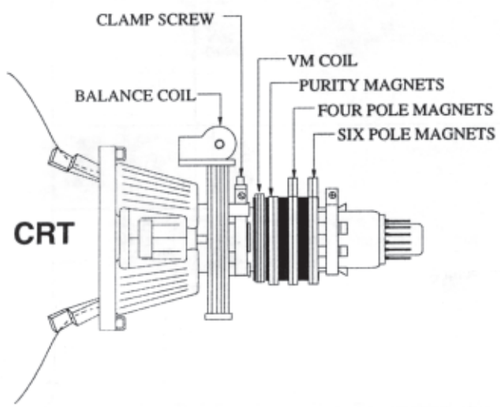
NOTE: Spread the two tabs of each set of magnets equally and opposite to converge vertically and rotate both tabs in the same direction to converge horizontally. Since the 4 and 6-pole magnets interact, repeat the adjustment until center convergence is correct.

Tune in a crosshatch pattern. Remove the rubber wedges between the deflection yoke and the CRT. Tilt the deflection yoke up or down to converge the vertical lines at the top and bottom of the screen and the horizontal lines at the left and right sides of the screen. Tilt the deflection yoke left or right to converge the horizontal lines at the top and bottom of the screen and the vertical lines at the left and right sides of the screen. Adjust the balance coil to correct misconvergence of red and blue horizontal lines at the right and left sides of the screen. Repeat convergence procedure if necessary to obtain the best overall convergence. Replace rubber wedges. To obtain the best corner convergence it may be necessary to order the permalloy convergence corrector strip (part no. 0FMK014ZZ). Place strip between CRT and yoke in area needing correction. Move and or rotate the strip until the best correction is obtained. Use tape in addition to the adhesive strip to secure it to the CRT.

PURITY CHECK

Enter serviceman mode. Ensure that the red CHK is on the screen and press the recall button on the remote transmitter to enter purity check mode. Press recall button to display desired screen color. Repeatedly pressing the recall button will cycle the screen color from normal to white, to red, to green, to blue, and then back to normal.

CRT NECK ASSEMBLY



PURITY

Operate the receiver for 60 minutes with the brightness control at maximum to allow CRT temperature to stabilize. Use a degaussing coil to demagnetize the CRT. Perform the Purity Check procedure. Select a green screen. Loosen the deflection yoke and move it back as far as possible. Move the purity tabs to center the vertical green band. Slowly slide the deflection yoke forward until a uniform green screen is obtained. Check purity adjustment for blue, white, and red screens.

ENTERING SERVICEMAN MODE

Turn on receiver and momentarily short pins 3 and 8 of connector TP. The letters "CHK" will appear in yellow on the upper right of the screen, volume up and down will adjust rapidly. Press the action button and volume up button on L board simultaneously. The receiver will enter the serviceman mode, the letters "CHK" will turn red, the volume up and down buttons will adjust normally and all customer controls are set to normal. Press power button on remote to select one of seven service modes.

- B = Sub Adjustments
- C = White Balance Adjustments
- D = Pincushion Adjustments
- P = PIP Adjustments
- S = Options Adjustments
- Y = Y Adjustments
- CHK = Normal operation of channel and volume buttons

SERVICEMAN MODE QUICK ENTRY

From the on screen menu, select the setup icon and select cable mode. Select the timer icon and set sleep timer to 30. Press the action button twice. Press the volume down button. Tune to channel 124. Adjust the volume to minimum. Press the receiver volume down button. The set will enter the serviceman mode and the red letters "CHK" will appear on the screen.

EXIT SERVICEMAN MODE

Press action and power buttons simultaneously and hold for approximately 2 seconds to exit serviceman mode. The receiver will shutoff then come back on channel 3 with audio.

SUB ADJUSTMENTS

Write down original levels in detail before making any adjustments in case a misadjustment occurs. Always exit serviceman mode after making adjustments. Enter serviceman mode and select service mode B. Press channel up and down buttons on remote to select adjustment. Press volume up and down buttons on remote to change level of adjustment.

Sub Adjustments Range and Levels

Sub Adjustments	Range	Default Level	On Set Level
Sub Color (B0)	0-63	32	21
Sub Tint (B1)	0-63	32	31
Sub Brightness (B2)	0-192	96	93
Sub Contrast (B3)	0-63	32	30
RF AGC (B4)	0-255	32	133
Sub Brightness (B5)	0-192	96	92
Sub Sharpness (B6)	0-127	32	5
Sub Color (B7)	0-15	7	5
Sub Tint (B8)	0-15	7	5

Sub Tint (B1) and Sub Color (B0)

Normalize picture settings, set brightness to minimum, set auto color to off position. Connect jumpers between TPD2 and ground. Connect jumpers between connector TP pin 6 and ground. Record original levels of C0, C1, C2, C5, C6, S1, and S2, then set as follows:

C0	2 020	C6	127
C1	128	S1	0
C2	2 020	S2	0
C5	127		

Tune in a color bar pattern. Connect oscilloscope to pin 5 of connector C1. Adjust B2 for minimum saturation. Adjust B0 for 2.4Vp-p ±.05Vp-p. Adjust B1 so that peak 2 of the waveform is halfway between peaks 3 and 4. Record waveform voltage. Connect oscilloscope to pin 3 of connector C1. Adjust S6 so that voltage of waveform is equal to voltage recorded at pin 5 of connector C1 times 1.1V. Connect oscilloscope to pin 5 of connector C1. Adjust B1 so that peak 2 is halfway between peaks 3 and 4. Connect oscilloscope to pin 4 of connector C1. Adjust B0 for .9Vp-p ±.02Vp-p. Remove jumpers. Set S1 to 7 and S2 to 15. Insure that color phase and saturation are normal.

Sub Brightness (B2)

This adjustment must be made after sub contrast or color temperature adjustments are made. DO NOT adjust screen after sub brightness is set. Tune in a color bar signal with 100 IRE white and 7.5 IRE black. Switch generator color to off. Adjust B2 until the black bar starts to turn gray, then decrease adjustment until bar just turns black.

Sub Contrast (B3)

NOTE: This adjustment is factory set, DO NOT adjust unless repairs are made to associated circuits, CRT board, or CRT is replaced.

Tune in a pattern with 87.5% modulation 70% saturated color bar with 100 IRE white and 7.5 black. Set picture to maximum, color and brightness to minimum, and sharpness to center. Set video NR to off. Record levels of B2, S1, and S2 and set levels to 0. Connect a jumper from connector TP pin 6 to ground. Connect a jumper from TPD2 to ground. Connect oscilloscope to pin 4 of connector C1. Adjust B3 for 2.8Vp-p ±.1Vp-p from white to black level. Do not include sync tip in measurement. Return B2, S1, and S2 to recorded levels. Perform Sub Brightness (B2) adjustment.

RF AGC (B4)

Tune in a picture. Adjust B4 until snow appears in picture, then back until snow disappears.

WHITE BALANCE ADJUSTMENTS

Write down original values in detail before making any adjustments in case a misadjustment occurs. Always exit serviceman mode after making adjustments. Enter serviceman mode and select service mode C. Press channel up and down buttons on remote to select adjustment. Press volume up and down buttons on remote to change level of adjustment.

White Balance Adjustments Range and Levels

White Balance Adjustments	Range	Default Level	On Set Level
Red Cutoff (C0)	(1)	2 156	2 158
Green Cutoff (C1)	0-255	32	199
Blue Cutoff (C2)	(1)	0 128	2 134
User Brightness (C3)	0-63	32	31
Sub Brightness (C4)	0-192	87	93
Red Drive (C5)	0-255	96	150
Blue Drive (C6)	0-255	96	158
Red Drive Offset - Cool (C7)	0-63	32	12
Blue Drive Offset - Cool (C8)	0-63	32	12
Red Drive Offset - Warm (C9)	0-63	32	20
Blue Drive Offset - Warm (CA)	0-63	32	12

NOTE: C3 adjustment and the brightness adjustment in the picture adjustment menu are the same adjustment. C4 and B2 are the same adjustment.
(1) Range is in following steps: 0 20 - 0 235, 1 20 - 1 235, 2 20 - 2 235, and 3 20 - 3 235.

Color Temperature (C0, C1, C2, C5, C6)

Tune in a white raster and allow 10 to 30 minutes warm-up time. Adjust C0, C1, and C2 for a white raster. Adjust C5 and C6 for warm white. Adjust C3 from low scale to high scale and check black and white tracking. Make needed adjustments to C0, C1, C2, C5, and C6. Perform Sub Brightness (B2) adjustment.

PINCUSHION ADJUSTMENTS

Write down original values in detail before making any adjustments in case a misadjustment occurs. Always exit serviceman mode after making adjustments. Enter serviceman mode and select service mode D. Press channel up and down buttons on remote to select adjustment. Press volume up and down buttons on remote to change level of adjustment.

Pincushion Adjustments Range and Levels

Pincushion Adjustments	Range	Default Level	On Set Level
Vertical Size (D0)	0-127	32	85
Vertical Linearity (D1)	0-63	32	41
S Compensation (D2)	0-63	32	25
Horizontal Size (D3)	0-63	32	41
Horizontal Centering (D4)	0-31	15	6
E-W Parabola (D5)	0-63	16	30
Trapezoid Compensation (D6)	0-63	32	36
E-W Corner 2 (D7)	0-15	7	15
E-W Corner 1 (D8)	0-15	7	15
Vertical EHT (D9)	0-15	8	8
Horizontal EHT (Da)	0-15	8	8
Vertical Position (Db)	0-63	32	32

Vertical Linearity (D1)

Tune in a crosshatch pattern. Adjust D1 so that boxes at top and bottom of screen are the same proportion.

Vertical Size (D0) and S Compensation (D2)

Tune in a crosshatch pattern. Adjust D0 for 1/2 inch overscan at top and bottom of screen. Adjust D2 so that the top and bottom boxes are the same proportion as the center boxes.

Horizontal Size (D3)

Tune in a crosshatch pattern. Adjust D3 so that the picture is just at the left and right edge of the screen and then increase the level by 3 digits.

Horizontal Centering (D4)

Tune in a crosshatch pattern. Adjust D4 so that pattern is centered.

MISCELLANEOUS ADJUSTMENTS continued

E-W Pincushion Correction (D5, D7, D8)

Tune in a crosshatch pattern. Normalize picture settings. Set auto color to off. Adjust D5 for straight vertical lines at left and right side of screen. Adjust D7 for straight vertical lines at top of screen. Adjust D8 for straight vertical lines at bottom of screen.

Trapezoid Compensation (D6)

Tune in a crosshatch pattern. Adjust D6 so vertical lines are perpendicular to horizontal lines.

Vertical DC and Dynamic Range Confirmation (Db)

Connect digital voltmeter to pin 2 of connector DY. Connect oscilloscope to pin 3 of connector DY. Tune in a monoscope pattern. Adjust Db for 13.0V ±.1V with no distortion at top and bottom of vertical waveform. Remove jumper.

PIP ADJUSTMENTS

NOTE: Adjustment of PIP adjustments not listed is not recommended.

Write down original values in detail before making any adjustments in case a misadjustment occurs. Always exit serviceman mode after making adjustments. Enter serviceman mode and select service mode P. Press channel up and down buttons on remote to select adjustment. Press volume up and down buttons on remote to change level of adjustment.

PIP Adjustments Range and Levels

PIP Adjustments	Range	Default Level	On Set Level
PIP Color (P0)	0-127	63	92
PIP Tint (P1)	0-255	54	54
PIP Brightness (P2)	0-31	15	22
PIP Contrast (P3)	0-127	66	68
PIP V Position 1/9 Upper (P4)	0-255	120	26
PIP V Position 1/9 Lower (P5)	0-255	122	143
PIP H Position 1/9 Left (P6)	0-255	32	10
PIP H Position 1/9 Right (P7)	0-255	7	101
PIP V Position 1/16 Upper (P8)	0-255	7	26
PIP V Position 1/16 Lower (P9)	0-255	8	160
PIP H Position 1/16 Left (PA)	0-255	8	10
PIP H Position 1/16 Right (PB)	0-255	32	116
PIP Freerun (PC)	0	0	0
PIP Y Delay (PD)	0-15	7	4

Pip Color, Tint, Brightness, and Contrast (P0 thru P3)

Tune in a color bar pattern on the PIP and main picture. Adjust P0 to match the PIP color with the main picture color. Adjust P1 to match the PIP tint with the main picture tint. Adjust P2 to match the PIP brightness with the main picture brightness. Adjust P3 to match the PIP contrast with the main picture contrast.

OPTIONS ADJUSTMENTS

NOTE: Adjustment of options adjustments not listed is not recommended.

Write down original values in detail before making any adjustments in case a misadjustment occurs. Always exit serviceman mode after making adjustments. Enter serviceman mode and select service mode S. Press channel up and down buttons on remote to select adjustment. Press volume up and down buttons on remote to change level of adjustment.

Options Adjustments Range and Levels

Options Adjustments	Range	Default Level	On Set Level
Pre & Overshoot (S0)	0-7	3	3
Black Expansion (S1)	0-15	7	4
White Gamma Level (S2)	0-15	7	15
White Gamma Gain (S3)	0-15	8	15
Small Gamma Level (S4)	0-15	7	7
R-Y Demodulation Angle (S5)	0-31	16	12
R-Y Demodulation Gain (S6)	0-63	32	25
G-Y Ratio (S7)	0-3	1	1
White Letter Compensation (S8)	0-15	7	4
White Letter Slice Voltage (S9)	0-15	8	5
Switches TV (SA)	0-255	120	36
Switches Video (SB)	0-255	120	36
Gradient of Contrast (SC)	0-255	122	90
Stereo Input Level (SD)	0-63	32	40
Stereo PLL VCO (SE)	0-63	32	44
Stereo Filter (SF)	0-63	32	33
Low Frequency Separation (S10)	0-63	32	41
High Frequency Separation (S11)	0-63	32	22
Clock Adjustment (S12)	0-255	128	130
S-Cutoff Red (S13)	0-28	12	14
S-Cutoff Blue (S14)	0-28	15	14
Loudness (S15)	0-15	8	7
Closed Caption Digital Filter (S16)	0-1	1	1
Closed Caption Scroll (S17)	0-2	1	1
Spatializer Effect (S18)	0-63	32	25

Stereo PLL VCO (SE)

Tune in a stereo signal. Connect a frequency counter to pin 25 of IC2201, adjust SE level to obtain 15.534kHz ± 50Hz.

Stereo Filter (SF)

Tune in a stereo signal. On generator select 1kHz audio frequency, and L-R modulating signal. Connect a scope to pin 26 of IC2201, adjust SF for minimum amplitude on the scope.

Frequency Separation (S10 & S11)

On generator select pilot, 1kHz audio frequency, and right modulating signal. Connect an oscilloscope to pin 26 of IC2201. Adjust S10 for minimum amplitude of waveform. On generator select 8kHz audio frequency. Adjust S11 for minimum amplitude of waveform.

Stereo Input Level (SD)

On generator select pilot, 1kHz audio frequency, and L-R modulating signal. Connect oscilloscope to pin 25 of IC2201 adjust SD for 900mVp-p.

Clock Adjustment (S12)

Connect a frequency counter to pin 34 of IC001. With AC power applied and receiver off, measure and record the frequency at pin 34 of IC001. Turn receiver on and enter the serviceman mode. Set S12 for the following formula:

S12=128 + 1.35 x 1000000 x (187.5 - (recorded frequency))/187.5

Y ADJUSTMENTS

Write down original values in detail before making any adjustments in case a misadjustment occurs. Always exit serviceman mode after making adjustments. Enter serviceman mode and select service mode Y. Press channel up and down buttons on remote to select adjustment. Press volume up and down buttons on remote to change level of adjustment.

Y Adjustments Range and Levels

Y Adjustments	Range	Default Level	On Set Level
Sync Separation (Y0)	0-7	4	4
Sync Separation (Y1)	0-255	122	24
Sync Separation (Y2)	0-255	122	12
Sync Separation (Y3)	0-255	122	12
V Comp Hold Start (Y4)	0-7	3	2
V Comp Hold End (Y5)	0-15	7	6
H Clamp Mode Level (Y6)	0-255	122	64
V Edge Coring Level (Y7)	0-31	16	22
V Edge Corr Limit Lev (Y8)	0-15	7	3
3D NStand Level (Y9)	0-15	8	5
3D Stand Level (YA)	0-15	8	1
1F2F Mdet High Level (YB)	0-15	7	5
1F2F Mdet Low Level (YC)	0-15	7	9
Mdet Set (YD)	0-15	7	12
Mdet Set (YE)	0-1	0	0
V Edge Gain (YF)	0-3	1	3
1F Color MLevel Set (Y10)	0-15	8	14
1F Color MLevel Set (Y11)	0-15	7	12
Mdet Set (Y12)	0-15	7	15
Color MEdge Det Lev (Y13)	0-15	8	5
1F Mdet Level (Y14)	0-15	7	8
2F Mdet Level (Y15)	0-15	7	2
1F Mdet Filter SW (Y16)	0-1	0	0
1F Mdet Edge Sens (Y17)	0-1	1	1
1F Mdet Sens (Y18)	0-15	8	15
1F Mdet High Level (Y19)	0-15	7	8
1F Mdet Low Level (Y1A)	0-15	7	4
2F Mdet High Level (Y1B)	0-15	8	3
2F Mdet Low Level (Y1C)	0-15	7	1
Mdet Edge Det Level (Y1D)	0-15	7	7
AI V Sampling start (Y1E)	0-31	15	4
AI V Sampling stop (Y1F)	0-63	32	30
AI H Sampling start (Y20)	0-31	16	5
AI H Sampling stop (Y21)	0-63	32	22
BGP Position (Y22)	0-255	122	16
B Exp APL Thresh L (Y23)	0-63	32	20
Pedestal Comp (Y24)	0-7	3	3
B Exp APL Calc (Y25)	0-31	15	6
B Comp Var Limiter (Y26)	0-15	7	4
Luminance Diff Gain (Y27)	0-3	1	3
Pseudo Contour Killer (Y28)	0-1	0	0
B Exp APL Reflection (Y29)	0-1	0	0
Base Value (Y2A)	0-15	7	15
B Exp Var Reflection (Y2B)	0-3	2	2
AntiBloom Threshold (Y2C)	0-63	32	0
S1 Histogram Limiter (Y2D)	0-63	32	30
S2 Histogram Limiter (Y2E)	0-63	32	30
S3 Histogram Limiter (Y2F)	0-63	32	30
S4 Histogram Limiter (Y30)	0-63	32	30
Ymin Det Offset (Y31)	0-7	3	4
Ymin Det Gain (Y32)	0-3	2	2
Ymin Limiter (Y33)	0-63	32	42
Ymax Limit Value (Y34)	0-63	32	39
AI Fleshtone SW (Y35)	0-1	1	1
APL Corr Limiter (Y36)	0-63	32	10
APL Corr SW Point (Y37)	0-127	62	37
Col Cont Level L APL (Y38)	0-63	32	28
Col Cont Gain L APL (Y39)	0-3	1	0
Col Cont Gain H APL (Y3A)	0-63	32	54

Y Adjustments Range and Levels continued

Y Adjustments	Range	Default Level	On Set Level
AI Col Corr Gain (Y3B)	0-3	1	2
Color Det Gain (Y3C)	0-3	1	1
Color Det Threshold (Y3D)	0-63	32	39
DSC Noise Removal (Y3E)	0-63	32	4
DSC Delay SW (Y3F)	0-1	0	0
DSC Off SW (Y40)	0-1	1	0
DSC Limit Level (Y41)	0-255	112	112
Clip point Edge Corr (Y42)	0-15	8	8
BPF SW RF (Y43)	0-3	2	3
BPF SW Video (Y44)	0-3	1	0
DSC Gain SW big sig (Y45)	0-3	1	1
DSC Limit SW big sig (Y46)	0-63	32	12
DSC Gain SW sm sig (Y47)	0-3	1	1
DSC Limit SW sm sig (Y48)	0-63	32	24
Edge Corr Gain SW (Y49)	0-15	8	8
Detail Corr Limit Lev (Y4A)	0-15	8	8
B Corr Gain on Edge (Y4B)	0-3	1	2
Coring Level on Edge (Y4C)	0-63	32	8
VM Freq SW (Y4D)	0-1	1	1
VM Coring Level (Y4E)	0-15	8	8
VM Limit Level (Y4F)	0-127	62	67
VM B Corr SW (Y50)	0-1	0	0
Y Delay Adj (Y51)	0-7	3	3
C Delay Adj RF (Y52)	0-15	8	6
C Delay Adj Video (Y53)	0-15	8	6
DCOR Corr COEFFI A (Y54)	0-255	122	10
DCOR Corr COEFFI B (Y55)	0-255	122	200
DCOR Corr COEFFI C (Y56)	0-255	122	100
VMLM Corr COEFFI A (Y57)	0-255	122	255
VMLM Corr COEFFI B (Y58)	0-255	122	200
Sharp Offset Level (Y59)	0-127	62	32
WECOR Thresh s sig (Y5A)	0-255	122	28
WECOR Thresh w sig (Y5B)	0-255	122	34
Burst In 16msXn (Y5C)	0-255	122	12
Burst Out 16msXn (Y5D)	0-255	122	0
SD Threshold on (Y5E)	0-255	122	226
SD Threshold off (Y5F)	0-255	122	226
VP Threshold max (Y60)	0-255	122	127
VP Threshold min (Y61)	0-255	122	107
VP (NG---OK) 16msXn (Y62)	0-255	122	12
VP (OK---NG) 16msXn (Y63)	0-255	122	12
Std time 16msXn (Y64)	0-255	122	6
SD (NG---OK) 16msXn (Y65)	0-255	122	12
SD (OK---NG) 16msXn (Y66)	0-255	122	12
Freq Avg Quantity (Y67)	0-4	2	3

SERVICE INFORMATION

POWER SUPPLY SHUTDOWN

When the horizontal or the vertical circuit exceed their normal current draw, the B+ feedback voltage at pin 6 of IC001 will increase to 3.3V or above, through Q804 or Q451, which will cause pin 31 of IC001 to go low. When pin 31 of IC001 goes low, it will cause RL801 to open and shut down the receiver.

TELEVISION SCHEMATIC

SEE IC001 PIN 10 PAGE 3E
A22 N2
R151 47K
R152 47K
C154 .22µF
C153 .01
10D 5.0V
MAIN TUNER NOT INCLUDED IN THIS COVERAGE
IF1 TO MAIN TUNER
X101 SAW FILTER
AGC TO MAIN TUNER
TP15
R103 1000
R102 1000
C004 .01
C101 .01
C116 10µF
R128 68K
R126 18K
C115 .01
18C 9.0V
RF AGC RANGE 4.9V TO 6.9V
R125 330
R202 220
X201 4.5MHz FILTER
R119 1500
R118 330
L103
X102 4.5MHz FILTER
NC
PART OF AN5170K IC101 VIF/SIF/AFC/DET
1.9V
2.0V
C212 10pF
R129 10K
C208 100pF
R2230 3300
R2231 5600
C2221 100pF
SEE IC2201 PIN 12 PAGE 3G
TAKEN WITH BAR SWEEP GENERATOR
1.3V 10µs
1.0V 10µs
Q102 MSD601 VIDEO AMP
R113 220
R114 3300
R117 100
R115 3000 DET OUT
C207 .01
C112 27pF
C105 .22µF
C209 1µF
C202 .01
C210 10µF
C111 .47µF
L135
R121 120
C135 27pF
R135 330
L105
C109 .01
R112 1000
SEE IC001 PIN 15 PAGE 3E
25 5.0V
10D 5.0V
Q142 2SB709 AMP
R145 470
R146 470
R142 1000
C140 30pF
L140
18A 9.0V
Q140 2SD601 AMP
R141 470
R140 1000
SEE IC3001 PIN 63 PAGE 3A
Q141 2SD601 FM TRAP SWITCH
R144 10K
R143 10K
SEE IC001 PIN 12 PAGE 3E
SEE Q1804 EMITTER PAGE 4A
Y1 A15
R348 560 1%
R350 680 1%
Q301 2SB709 AMP
R310 1000
TAKEN WITH BAR SWEEP GENERATOR
TAKEN WITH CHROMA BAR SWEEP GENERATOR
C301 47µF
R626 33K
SEE Q1805 EMITTER PAGE 4A
C602 .01
C IN 2.1V
3.5V Y IN
1.9V SHARPNESS CONTROL
.39V YS OSD
GND
2.8V
C. V. RGB GND
BLK D. 4.0V
R723 10K
C709 1µF
R724 4700
C317 4.7µF
R305 47K
SEE Q310 EMITTER PAGE 3D
C401 .033
R401 1800
C409 470pF
C501 .0018
R501 1800
C521 120pF
PART OF AN5308NK IC301 VIDEO/CHROMA/HOLD DOWN
V SYNC 2.1V
H SYNC 2.1V
HOLD DOWN 2.2V
AFCFBP .18V
BLK .27V
DEF GND
S SEP FILTR 2.9V
SYNC 9V
AFC1 4.3V
AFC2 2.1V
32fh VCO 2.1V 6.0V
NC
0V NC
2.2V V AGC
1.2V V FILTER
.39V VFB
V OUT 2.9V
EW OUT 4.1V
HORIZ OUT .11V
V.P. 4.2V
VRAMP 1.2V
R308 220
C308 3.3µF
R309 270K
18A 9.0V
C502 .033
C503 4.7µF
R504 1200
C505 .056
R509 680K
7 6.3V
X501 503kHz
C504 220pF N750
R722 220
C403 .33µF
3.0V 5ms
4.5V 10µs
R506 330
D501 MA165
A16 Y2
SEE Q4313 BASE PAGE 4A
SEE IC001 PIN 55 PAGE 3E
R405 1000
C507 .12
R451 12K
IC451 LA7845N VERT OUT
C456 2pF NPO
R453 12K
R455 10K
C451 2.2µF
R454 47K
C455 2200µF
R470 1000
R458 2.7
R452 1.8
C457 100µF
R469 1470 1%
R468 4320 1%
18B 9.0V
D455 ERA15-01
16 26.0V
C454 220µF
R460 10K
R461 22K
32V 5ms
R456 330 1W
R457 1.5
C458 .1 100V
L555 YOKE
DY
330
8.3
R522 120pF
R503 4700
C509 82pF
R523 56pF
R502 5600
R524 2200
R525 2200
D530 MA4039H
SEE Q504 BASE PAGE 3E
C534 .01
C532 .01
R533 2740 1%
R532 24.3K 1%
C531 33µF
D534 MA4047M 4.7V
R537 10K
Q502 2SD601 SWITCH
.13V
18A 9.0V
D533 MA29Q-ATA
Q503 2SD601 SWITCH
1.4V
SEE Q4309 BASE PAGE 4A
R540 10K
R527 820
C506 4.7µF
C508 .01
18A 9.0V
C545 56pF
R545 330K
-.17V
Q505 2SD601 SYNC AMP
4.2V
D543 MA165
R546 1800
A16 Y2
SEE Q4312 BASE PAGE 4A
10A 5.0V
D532 MA4062LTV 6.0V
R536 270K
D531 ERA22-04
R531 47
R535 560
C535 .0022
D542 MA4082M 8.2V
R534 560
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2G
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®
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A52 P2
R517 3900 2W
C511 .0012 500V
T502
16.1
9.4
Q501 2SC4212H HORIZ DRIVE
87.1V△
-.03V△
R571 1000
T501
92.4
.1
232V△ 10µs
C572 470pF 2kV
Q551 2SD2539 HORIZ OUT
140V△
-.08V△
0V△
L554
C556 .001 2kV
C557 .001 2kV
25V△ 10µs
R515 3900 3W
R516 3900 3W
C514 820pF 500V
3 140V△
△ TAKEN FROM COMMON TIE POINT
R558 1000 FUSIBLE 1W
L551
MAGNET
C559 .39 250V (200V)
C551 .01 1.2kV
D552 RS3FS
C554 820pF 2kV
C552 .033 400V
D553 RU3ANV
A1
A2
A3
A4

TELEVISION SCHEMATIC continued

SEE Q1871 EMITTER PAGE 3B
SEE Q015 EMITTER PAGE 3F
SEE IC001 PIN 44 PAGE 3E
SEE IC001 PIN 42 PAGE 3E
SEE IC001 PIN 43 PAGE 3E
SEE IC001 PIN 59 PAGE 3E
SEE IC001 PIN 60 PAGE 3E

R079 220
R616 1500
R080 470
Q602 2SB709 AMP 1.6V
Q603 2SB709 BUFFER .06V
R602 100
1.0V
3.4V
R625 1000
R621 1000
R622 3600
C617 .01
R623 1500
10A 5.0V
10A 5.0V
C610 .22µF
C624 330pF
C612 .22µF
C622 330pF
C611 .22µF
C623 330pF
R640 22
R639 22
NC
NC
NC
2.0V 10µs
C621 .33µF
R614 3300
2.5V 10µs
C620 .33µF
R613 3300

60 1.0V SCP
39 0V NC
PART OF AN5308NK IC301 VIDEO/CHROMA/HOLD DOWN
26 .06V YS OSD
27 2.7V B OSD
30 2.7V R OSD
29 2.6V G OSD
23 0V NC
10 4.3V SDA
12 4.3V SCL
34 0V NC
35 2.9V R-Y OUT
32 3.9V R-Y IN
36 2.9V B-Y OUT
31 4.1V B-Y OUT
20 2.7V R OUT
B OUT 3.1V
24
G OUT 2.7V
22

EHT 0V
25
C549 .01
9.0V
19
18A
ABL C 3.2V
51
C302 1µF
R302 1000
C315 22µF
R301 5600
A52 14
P2 14
Q560 2SA564 ABL AMP
R565 10K
5.0V
3.1V
R563 56K
R564 56K
13 220V
LOCK DET 5.7V
58
R335 560K
C307 .022
R336 680K
SEE IC001 PIN 3 PAGE 3E
3.58 VCO 2.4V
37
X601 3.58MHz
C607 9pF NPO
FLESH TONE 3.5V
42
C615 33pF NPO
L601
C616 .01
APC 2.6V
38
C605 .01
C604 2.2µF
R606 3900
R618 3900
20 5.0V
SC OUT 3.4V
40
R603 470
R615 4700
K. FILTER 4.9V
41
C614 .1
C306 22µF
20 5.0V
WHT D 3.4V
48
R306 82K
20 5.0V
ABL B 3.0V
43
C304 1µF
APL D .34V
47
Y 5.2V
49
C309 1µF
20 5.0V
C316 4.7µF
R307 33K
Q303 2SB709 AMP .94V
R303 10K
18A 9.0V
Q304 2SD601 AMP .36V
R304 1650 1%
5V
45
20 5.0V
BLMING DC 2.3V
46
C311 .01
C312 10µF
R327 2200 1%
R325 5600 1%
18A 9.0V
TP TPB2 6
SEE IC6501 PIN 23 PAGE 3C
Q604 MSD601 AMP 2.6V
3.3V
C625 .01
R605 470
R604 2200
C626 390pF
L602
20 5.0V
10A 5.0V

10 9 8 7 6 5 4 3 2 1
T551 BOTTOM VIEW 11

T551
10 .6 9 3 140V△
1 SEE POWER SUPPLY PAGE 2E
.4
2 TPD1
.1 5 SEE POWER SUPPLY PAGE 2E
FOCUS
D555 MA165
.1 6 SEE CRT FILAMENTS PAGE 2H X
.2 7 SEE POWER SUPPLY PAGE 2E
SCREEN
R557 10K
TPD2
.1 8 SEE POWER SUPPLY PAGE 2E
5600
3
D556 MA4360H
C560 4.7µF
P2 10
A52 10
11 13 220V
CRT ANODE
HV ANODE 26kV TO 29kV
R556 2700

PC817X2 IC751 OPTO-COUPLER
Q751 JC501 DRIVER 2.7V
3.4V
18B 9.0V
R767 82
1 2.5V 3.1V 3
2 1.4V 4
R771 680
19 27.0V△
R769 560
D755 MA29W-ATA
R766 1000
R765 470

PC817X2 IC752 OPTO-COUPLER
1 6.5V△ 3
2 5.5V△ 4
R777 18K
18B 9.0V
R773 2.2M
R775 270K
C757 330µF
19 27.0V△
JA101 Q758 BIAS 3.1V△

R752 470 3.1V△
Q754 2SA564 AMP 3.8V△
R751 3300
19 27.0V△
D753 MA165
R779 1800
R772 3300
Q755 2SC1685 AMP 3.5V△
R774 470
19 27.0V△
D754 MA165
R755 10K
Q752 2SA564 E-W PCC DRIVE 2.4V△
3.0V△
R761 10K
19 27.0V△
2.5V△ 5ms
Q753 2SD1267 E-W PCC DRIVE .53V△
28.9V△
R763 1800
R764 10 FUSIBLE 2W
R762 330 (470)
C756 3.9µF 100V
L751
Q756 JC501 AMP 3.5V△
5.8V△
2.9V△
R757 6800
Q757 JA101 AMP 6.5V△
R758 1800
19 27.0V△
R756 12K
19 27.0V△

5.6V 10µs
Q354 2SC1685 RED AMP 2.8V
8.3V
2.4V
1
R607 47
A31 5
C1 5
R354 100
R357 100
R608 1800
D367 MA4056H 5.6V
SEE IC1601 PIN 1 PAGE 3F
R360 150
R351 150
C360 560pF
C353 820pF
R371 820
5.8V 10µs
Q355 2SC1685 BLUE AMP 2.9V
8.3V
2.5V
2
R611 47
A31 3
C1 3
R356 100
R358 100
R612 1800
D368 MA4056H 5.6V
SEE IC1601 PIN 8 PAGE 3F
R363 150
R352 150
C358 560pF
C354 820pF
R372 820
5.3V 10µs
Q356 2SC1685 GREEN AMP 2.6V
8.3V
2.2V
3
R609 47
A31 4
C1 4
R355 100
R359 100
R610 1800
D369 MA4056H 5.6V
SEE IC1601 PIN 4 PAGE 3F
R364 150
R353 150
C359 680pF
C355 820pF
R373 820
2SA564 Q363 BIAS 1.9V
1.2V
D366 MA165
R3294 100
R3291 3300
C364 10µF
R3293 560
C371 10µF
R3290 820
18E 9.0V

△ TAKEN FROM COMMON TIE POINT ▽

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2G

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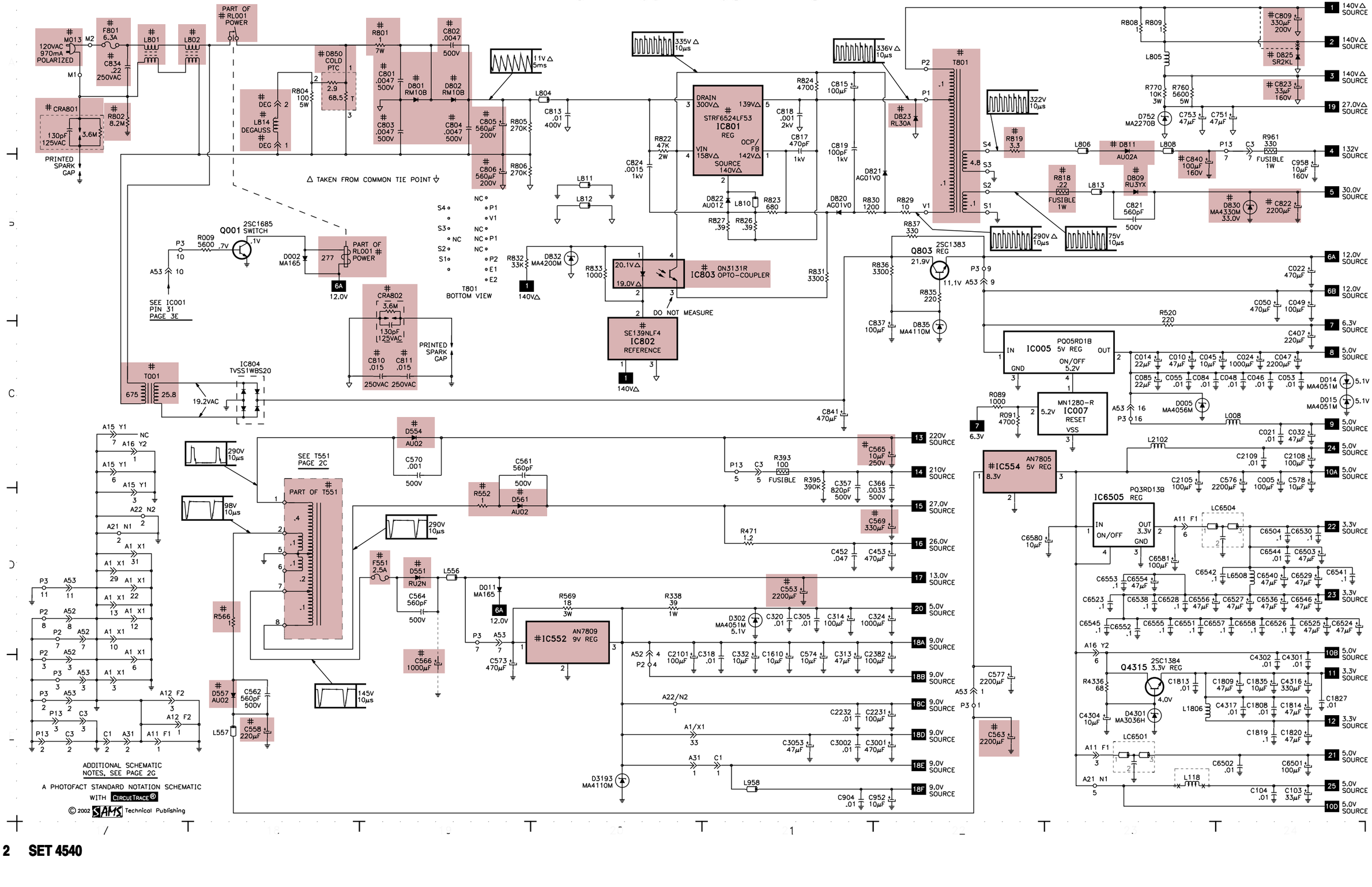
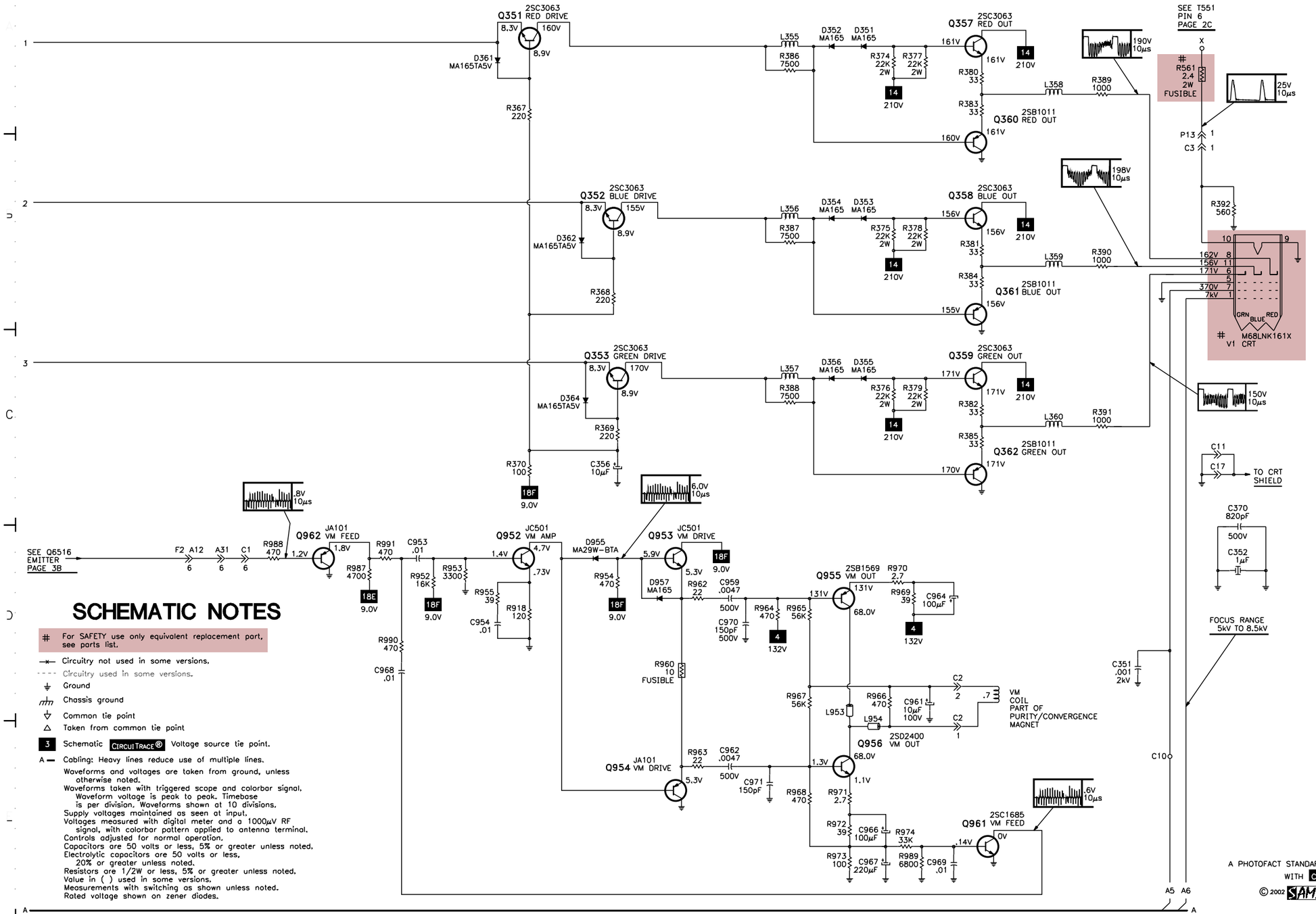
A2 A1 A5 A6 A3 A4

POWER SUPPLY SCHEMATIC



TELEVISION SCHEMATIC continued



SCHEMATIC NOTES

For SAFETY use only equivalent replacement part, see parts list.

—×— Circuitry not used in some versions.

- - - - Circuitry used in some versions.

⏚ Ground

Chassis ground

Common tie point

△ Taken from common tie point

3 Schematic CIRCUITRACE® Voltage source tie point.

A — Cabling: Heavy lines reduce use of multiple lines.

Waveforms and voltages are taken from ground, unless otherwise noted.
Waveforms taken with triggered scope and colorbar signal. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
Supply voltages maintained as seen at input.
Voltages measured with digital meter and a 1000µV RF signal, with colorbar pattern applied to antenna terminal.
Controls adjusted for normal operation.
Capacitors are 50 volts or less, 5% or greater unless noted.
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.
Resistors are 1/2W or less, 5% or greater unless noted.
Value in ( ) used in some versions.
Measurements with switching as shown unless noted.
Rated voltage shown on zener diodes.

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A/V SWITCHING SCHEMATIC

A

B

PART OF CXA2079Q
IC3001 TV/AV SWITCH

SEE Q140 EMITTER PAGE 2B
SEE Q2101 EMITTER PAGE 4B
SEE IC001 PIN 28 PAGE 3E
SEE IC001 PIN 29 PAGE 3E
PART OF JK3001 EXT VIDEO IN 1
PART OF JK3001 EXT VIDEO IN 2
PART OF JK3001 AV1 S-VIDEO
PART OF JK3001 AV2 S-VIDEO
ACTIVATED BY INSERTION OF PLUG INTO JK3001
PRINTED SPARK GAP
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2G

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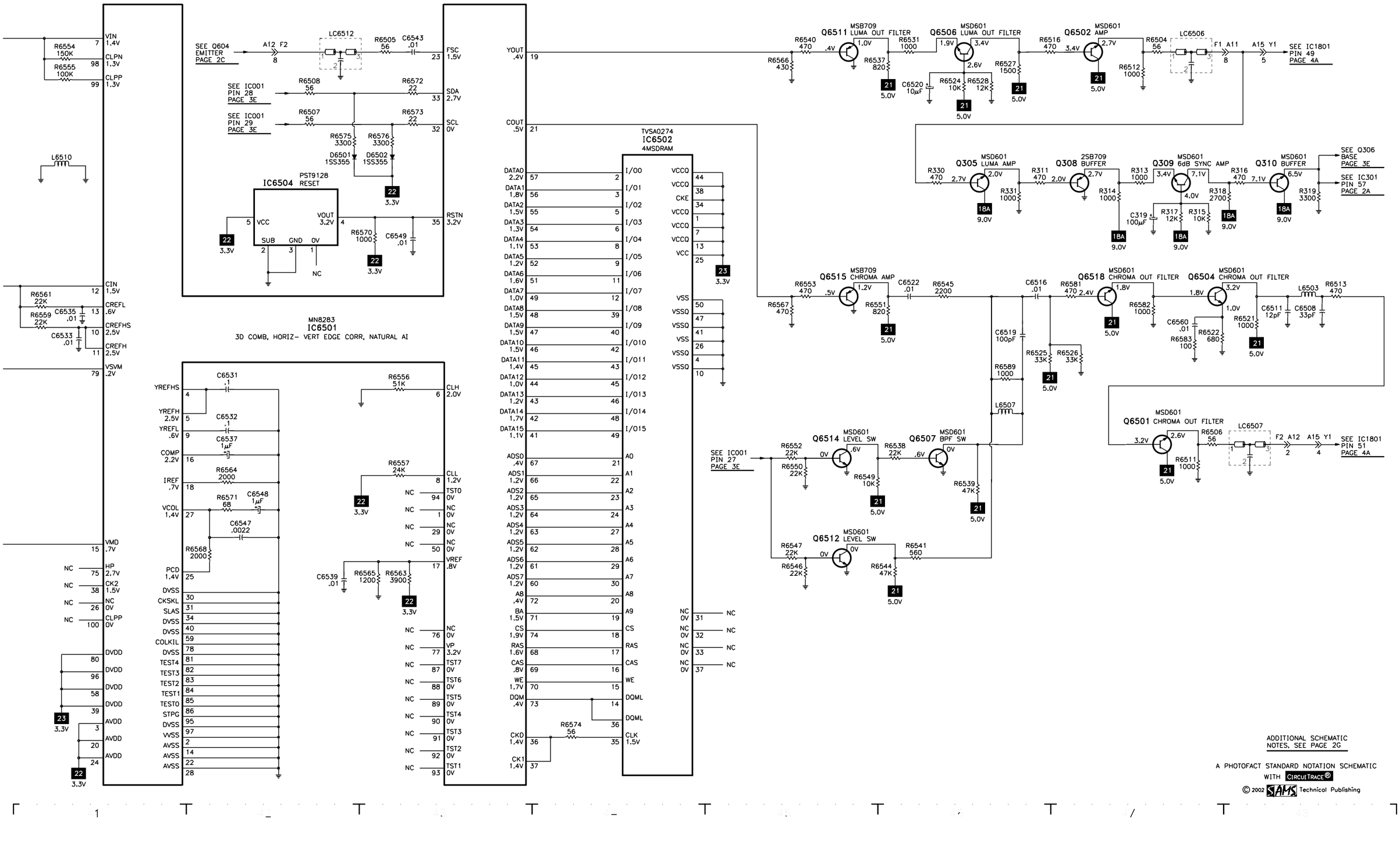
PART OF JK3001 VIDEO PROGRAM OUT
PART OF JK3004 VIDEO 4
PART OF JK3004 LEFT AUDIO 4
PART OF JK3004 RIGHT AUDIO 4
PART OF JK3001 VIDEO
PART OF JK3001 LEFT AUDIO
JK3001 RIGHT AUDIO

SEE Q4309 BASE PAGE 4A
SEE IC1801 PIN 31 PAGE 4A
SEE IC301 PIN 26 PAGE 2C
SEE Q962 BASE PAGE 2G

COMB FILTER SCHEMATIC


IC6501
MN8283
3D COMB, HORIZ- VERT EDGE CORR, NATURAL AI
IC6502
TVSA0274
4MSDRAM
IC6504
PST9128
RESET
Q6511 MSB709 LUMA OUT FILTER
Q6506 MSD601 LUMA OUT FILTER
Q6502 MSD601 AMP
Q305 MSD601 LUMA AMP
Q308 2SB709 BUFFER
Q309 MSD601 6dB SYNC AMP
Q310 MSD601 BUFFER
Q6515 MSB709 CHROMA AMP
Q6518 MSD601 CHROMA OUT FILTER
Q6504 MSD601 CHROMA OUT FILTER
Q6501 MSD601 CHROMA OUT FILTER
Q6514 MSD601 LEVEL SW
Q6507 MSD601 BPF SW
Q6512 MSD601 LEVEL SW
SEE Q604 EMITTER PAGE 2C
SEE IC001 PIN 28 PAGE 3E
SEE IC001 PIN 29 PAGE 3E
SEE IC001 PIN 27 PAGE 3E
SEE IC1801 PIN 49 PAGE 4A
SEE IC1801 PIN 51 PAGE 4A
SEE Q306 BASE PAGE 3E
SEE IC301 PIN 57 PAGE 2A
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2G

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SYSTEM CONTROL SCHEMATIC

E

F

RM001 REMOTE RECEIVER
VCC 5.0V ROUT GND
9 5.0V

R045 1000 P3 6 A53 6 R008 1000
C011 100pF

RM IN 4.9V 1
SDA3 0V NC 13
SCL3 0V NC 14
AFC 1 2.3V 10
AFC 2 2.3V 11
VPHO 2.4V 24
CVBSO 2.2V 26
SPATIALIZER 4.9V NC 19
KEY SCAN1 4.9V 5
G.S. MODE 0V NC 20
KEY SCAN2 2.6V 6
G.S. RESET 0V NC 21
HALT 4.9V 56
OSDXO 4.9V NC 36
MNTY POWER 0V NC 34
DIGI CON 33
VSS 38
CTV PTV 2
LOCK DET 2.9V 3
ROTATION 0V NC 18
NR 0V NC 30
V-SYNC 4.2V 55
CREFO .09V 23
V-SIZE 2.4V NC 17
H-SYNC 4.2V 39
OSC2 2.5V 63
OSC1 2.4V 62
MTS BROD 4.4V 9
FA PORT 4.9V 8
TEST 52
ABL IN 7
VSS 64
RESET 4.9V 54

SEE IC101 PIN 12 PAGE 2A
SEE IC2101 PIN 12 PAGE 4B
R018 10K
R019 10K
SEE Q310 EMITTER PAGE 3D
Q306 2SD601 SYNC AMP
5.7V 6.3V 9.0V 18A
R332 2200 R340 22K C330 100pF
C016 .47µF C017 1µF
R334 3300
K1N1 TP 2
R013 1800

S007 TV/VIDEO S005 CH UP S004 CH DN S003 VOL UP S002 VOL DN S001 POWER
R037 9100 R036 5100 R035 3300 R034 2200 R033 2200
R038 22K TPS7
S006 ACTION
R032 10K 1% 9 5.0V
P3 8 A53 8

△ TAKEN FROM COMMON TIE POINT ▽

R039 1000
R821 3900 R820 15K 17 13.0V
P3 4 A53 4 R014 1800
R050 10K 8 5.0V

Q804 2SA1767 SWITCH
140V△ .3V△
R810 2700 C808 100µF 2 140V△
C807 3.3µF 1 140V△
1 3 .03V 0V△ 2 4 6A 12.0V
IC806 ON3131R OPTO-COUPLER
R812 18K
D806 MA4047H 5.1V
R813 5600
D807 MA165
D456 MA165

D838 MA165 D837 MA4100M 10.0V
R839 10K 5 30.0V
R472 10K 16 26.0V
C466 33µF 15 27.0V
Q451 JA101 SWITCH 27.6V 0V 15 27.0V
R473 22K C467 1µF R474 10K

SEE IC301 PIN 58 PAGE 2C
R011 10K
4.8V 5ms
R048 1000
SEE IC301 PIN 62 PAGE 2A
C015 180pF
5.3V 10µs

SEE IC301 PIN 61 PAGE 2A
D540 MA4047M 4.7V
R541 1000 C540 820pF
C541 .0039 R542 6800
R543 2200 C542 .0039
D541 MA165
Q504 2SD601 HORIZ PULSE -.11V 4.4V
R544 1800 10A 5.0V
R060 1000
C040 27pF X001 12MHz C039 22pF

SEE IC2201 PIN 5 PAGE 3G
N2 A22 5
R017 10K
FA1 TP 8
R015 1800
FA2 TP 3
R016 10K 8 5.0V
8 5.0V

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2G

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IC006 MN1280-R RESET
8 5.0V 2 VDD VSS 3 OUT 4.9V 1
C044 .01 C035 4.7µF C036 .1 8 5.0V

MN102L35GTA IC001 CPU

TV/VIDEO 0V 27
SDA1 4.3V 59
COMP 3.5V 45
SCL1 4.3V 60
SDA2 2.8V 28
VERSION 0V 4
SCL2 2.8V 29
OSDX1 0V 37 NC
SUB PWR 0V 57 NC
VCP 1.3V 25 NC
RF AGC 2.3V 15
PV1 (YUV SW) 0V 58 NC
SPEAKER 4.9V 53
ANT SW 4.0V 40
FM TRAP 0V 12
RED OSD 0V 42
GREEN OSD 0V 43
DOLBY SW 4.9V 35
BLU OSD 0V 44
YM 0V 48
VREF 1.5V 47
SUB WOOFER 0V 32 NC
YS 0V 41
IREF 1.5V 46
AVDO 49
AVDO 22
5.0V 61
PD0 1.3V 50
VCO1 1.3V 51
S DEFEAT 0V 16
POWER 4.7V 31

R026 100 A11 F1 7 LC6505 R6503 56 SEE Q6514 BASE PAGE 3D
L015
C029 1µF 8 5.0V
L016
L012 L013
R010 10K 8 5.0V
A1 X1 2 LC6509 A12 F2 5 SEE IC3001 PIN 34 PAGE 3A
SEE IC6501 PIN 33 PAGE 3C
SEE IC2351 PIN 17 PAGE 3G
LC6508 SEE IC6501 PIN 32 PAGE 3C
R058 1800 R059 1800
A12 F2 4 SEE IC2351 PIN 16 PAGE 3G
A1 X1 1 SEE IC3001 PIN 33 PAGE 3A
R021 5600 SEE IC101 PIN 5 PAGE 2A
C012 100pF C013 22µF
R068 10K SEE IC2301 PIN 8 PAGE 3H
R061 1000
R020 470 SEE Q141 BASE PAGE 2B
SEE IC301 PIN 30 PAGE 2C
R064 120 1%
R055 470 SEE Q3191 BASE PAGE 3G
R066 120 1%
SEE IC301 PIN 29 PAGE 2C
SEE IC301 PIN 27 PAGE 2C
R040 120 1%
C1608 100pF R1606 33K
Q1601 2SD601 SWITCH 0V
R042 1000
R082 1600 1%
C031 .01 R083 680 1% 8 5.0V
R1605 5600 18A 9.0V
SEE IC301 PIN 26 PAGE 2C
Q015 2SD601 AMP 0V 0V
R086 10K R087 470 R088 330 8 5.0V
R062 100
R1608 33K C1609 100pF
Q1602 2SD601 SWITCH 0V
R1607 3300 18A 9.0V
C054 .01 R041 1200 1%
8 5.0V
C042 .022 C083 .01 C041 1000µF L010 8 5.0V
R043 6800 R044 150 C034 .0027
R022 1000
R028 100
SEE Q2331 BASE PAGE 3G
SEE Q0001 BASE PAGE 2E

MAIN AND PIP TUNERS NOT INCLUDED IN THIS COVERAGE

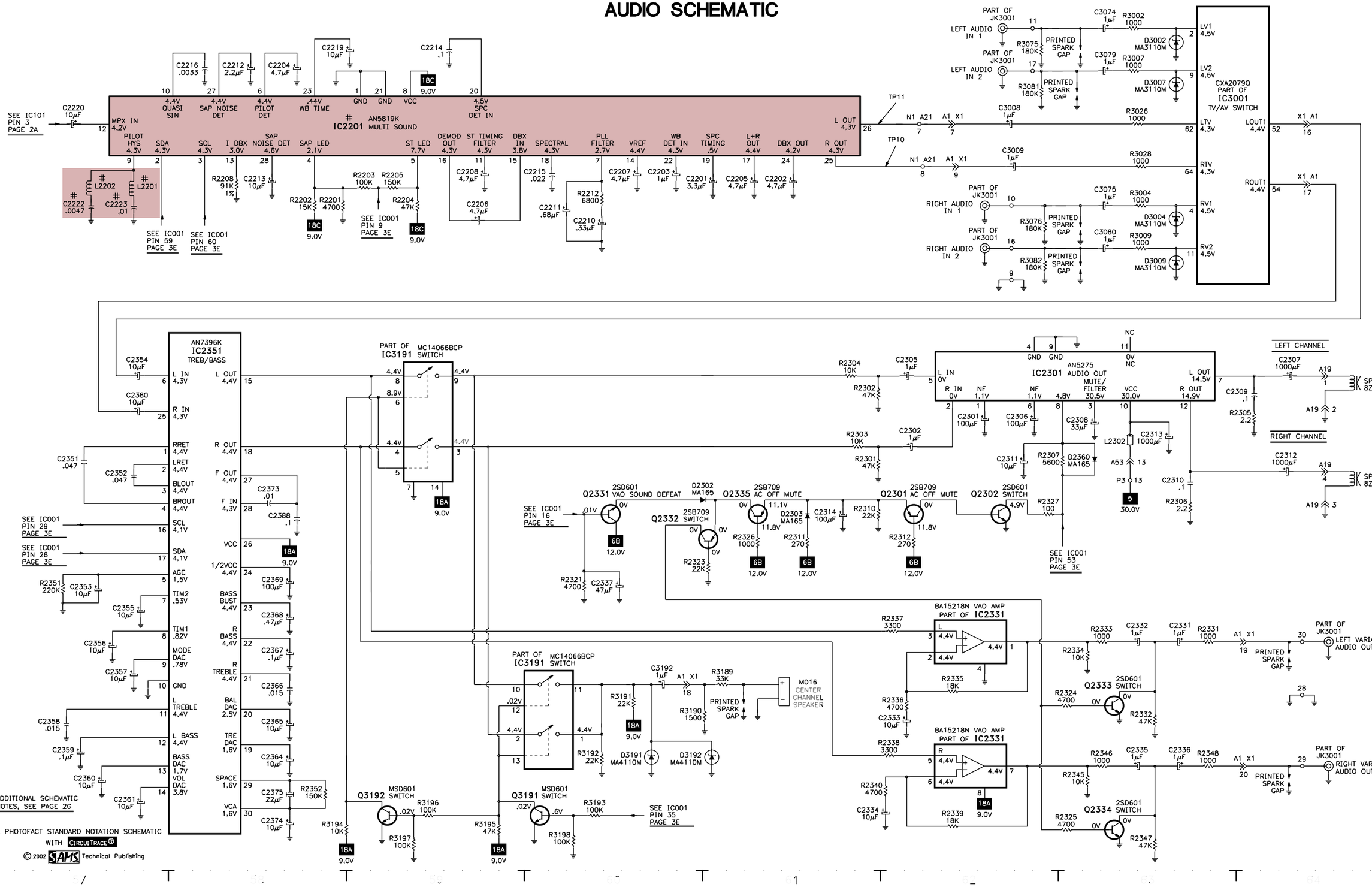
C037 100pF R057 2700 8 5.0V
C038 100pF R056 2700 8 5.0V
R053 100 R052 100
SDA1 TP 7 SCL1 TP 4
SDA TO PIP TUNER
SCL TO PIP TUNER
IC002 24LC08BIP I²C EEPROM
4.3V SDA1 SCL1 4.3V 0V
1 2 3 4 7 6 8
C043 .01 8 5.0V
L017

A16 Y2 4 SEE Q1802 EMITTER PAGE 4A
A22 N2 4 SEE IC2201 PIN 2 PAGE 3G
SEE IC301 PIN 10 PAGE 2C
SDA TO MAIN TUNER
SEE IC301 PIN 12 PAGE 2C
SCL TO MAIN TUNER
A22 N2 3 SEE IC2201 PIN 3 PAGE 3G
A16 Y2 5 SEE Q1803 EMITTER PAGE 4A
ADD TO MAIN TUNER
NC TO MAIN TUNER
TU TO MAIN TUNER

ANT1 IN SPLIT OUT ANT2 IN
RF TO PIP TUNER
RF TO MAIN TUNER
M017 2RF SPLITTER
Q014 MSD601 2RF SWITCH .05V .78V
R081 22 A4 2 C081 1µF A4 1 18A 9.0V
L001 18A 9.0V C001 100µF
BM TO MAIN TUNER
BPL TO MAIN TUNER
10A 5.0V
P2 11 A52 11 R560 12K 2W 13 220V C006 4.7µF D004 MA4330H
BTL TO MAIN TUNER
NC TO MAIN TUNER
NC TO MAIN TUNER

IC1601 TC4066BP TRANSPARENT
11 .24V 10 12 8.9V
3 2.7V 4 5 .24V
9 1.8V 3.0V 8 6 .24V
2 1.8V 2.7V 1 13 14 7
18A 9.0V
C1607 10µF R1604 1800 R1609 6800
R1602 330 SEE Q356 BASE PAGE 2D
R1601 330 SEE Q355 BASE PAGE 2D
R1603 330 SEE Q354 BASE PAGE 2D

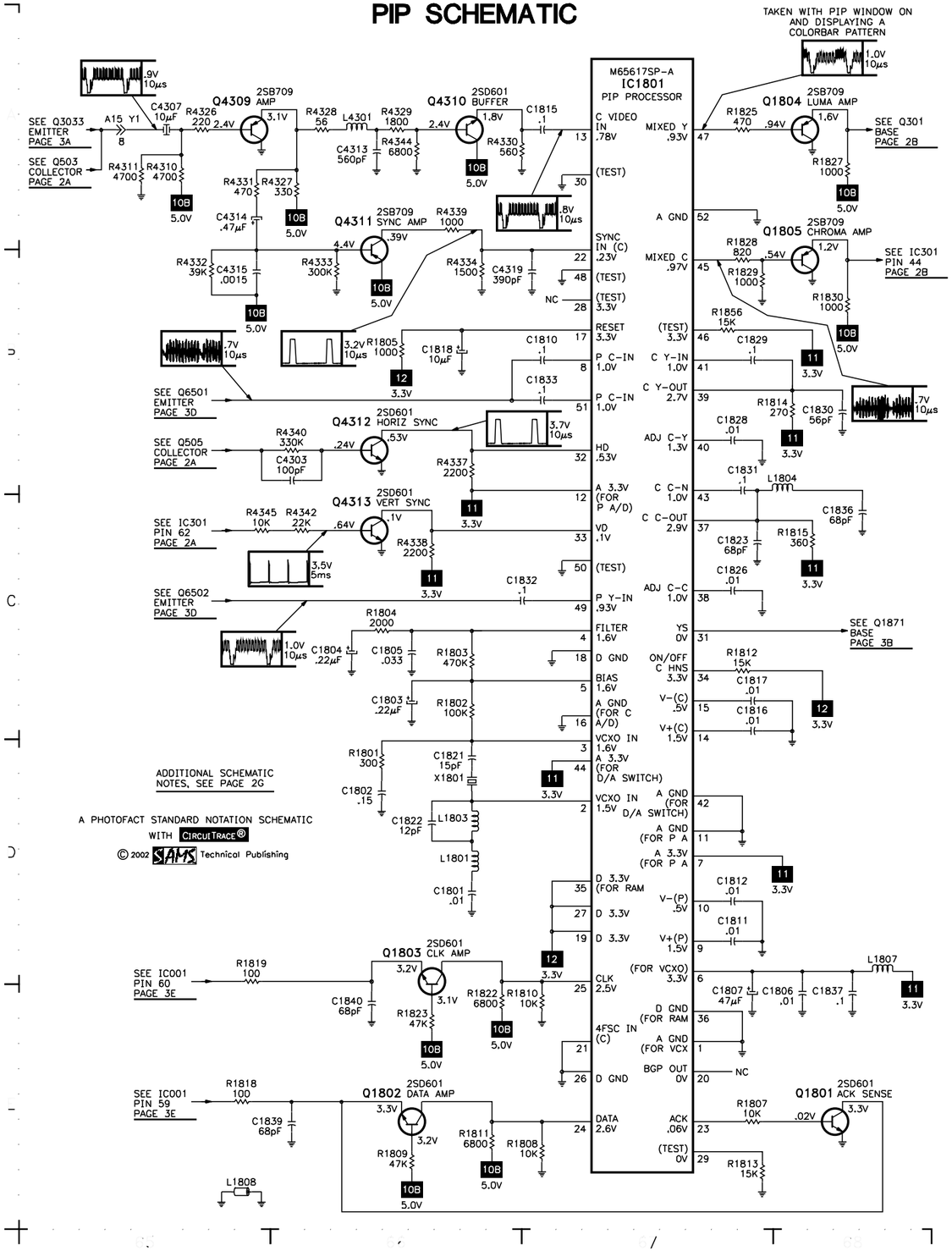
AUDIO SCHEMATIC



PANASONIC

MODELS CT-27SF35W, CT-27XF35CW (CHASSIS AMEDP323)

A
PIP SCHEMATIC


M65617SP-A
IC1801
PIP PROCESSOR
TAKEN WITH PIP WINDOW ON AND DISPLAYING A COLORBAR PATTERN
1.0V 10µs
Q4309 2SB709 AMP
Q4310 2SD601 BUFFER
Q4311 2SB709 SYNC AMP
Q4312 2SD601 HORIZ SYNC
Q4313 2SD601 VERT SYNC
Q1804 2SB709 LUMA AMP
Q1805 2SB709 CHROMA AMP
Q1803 2SD601 CLK AMP
Q1802 2SD601 DATA AMP
Q1801 2SD601 ACK SENSE
SEE Q3033 EMITTER PAGE 3A
SEE Q503 COLLECTOR PAGE 2A
SEE Q6501 EMITTER PAGE 3D
SEE Q505 COLLECTOR PAGE 2A
SEE IC301 PIN 62 PAGE 2A
SEE Q6502 EMITTER PAGE 3D
SEE Q301 BASE PAGE 2B
SEE IC301 PIN 44 PAGE 2B
SEE Q1871 BASE PAGE 3B
SEE IC001 PIN 60 PAGE 3E
SEE IC001 PIN 59 PAGE 3E
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2G
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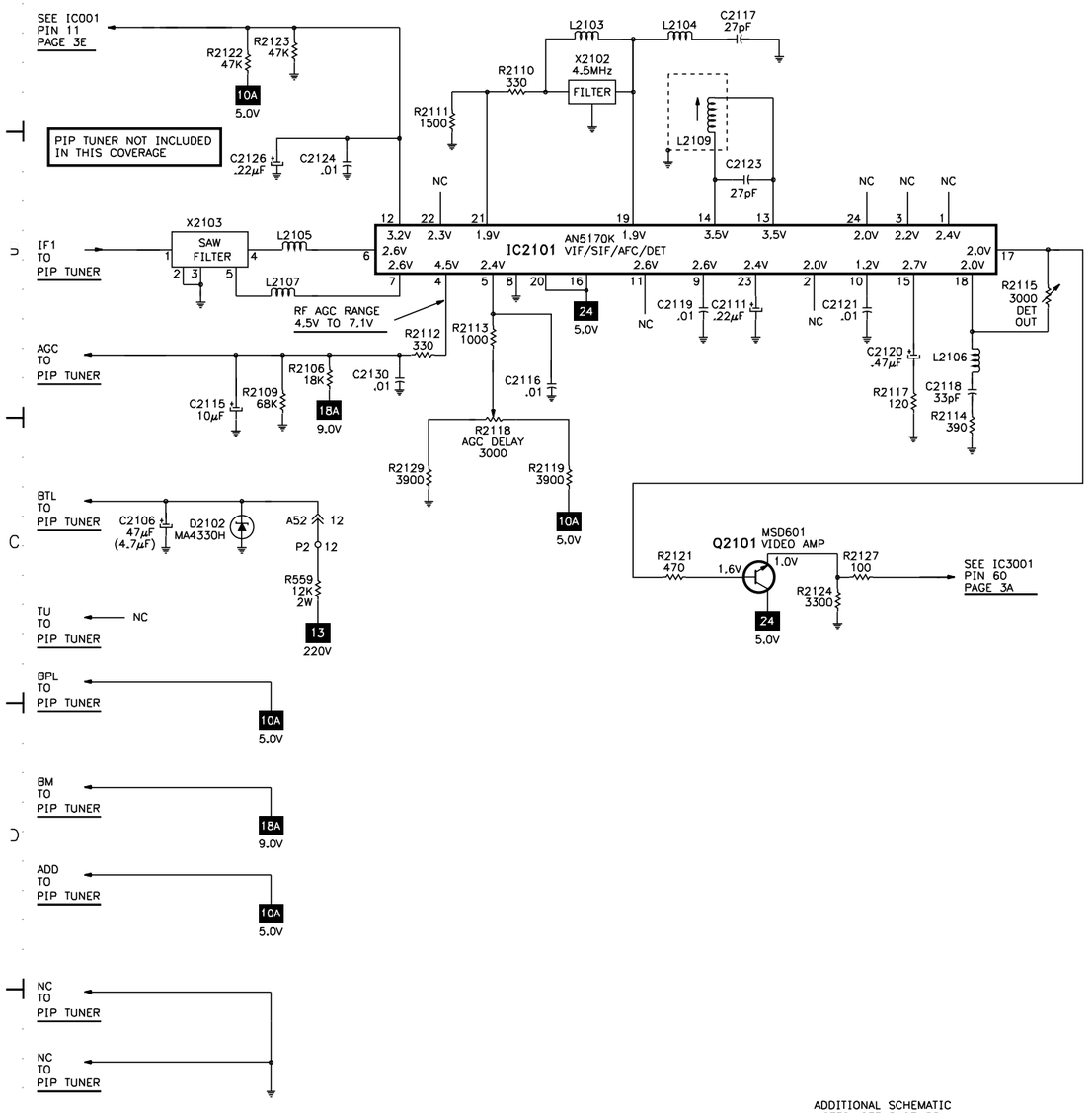
B
PIP IF SCHEMATIC


IC2101 AN5170K VIF/SIF/AFC/DET
SEE IC001 PIN 11 PAGE 3E
PIP TUNER NOT INCLUDED IN THIS COVERAGE
X2103 SAW FILTER
X2102 4.5MHz FILTER
IF1 TO PIP TUNER
AGC TO PIP TUNER
BTL TO PIP TUNER
TU TO PIP TUNER
BPL TO PIP TUNER
BM TO PIP TUNER
ADD TO PIP TUNER
NC TO PIP TUNER
RF AGC RANGE 4.5V TO 7.1V
Q2101 MSD601 VIDEO AMP
SEE IC3001 PIN 60 PAGE 3A
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2G
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SCHEMATIC COMPONENT LOCATION GUIDE

C001	C56	C320	D21	C577	E22	C1811	D67	C2332	D63	C6508	C48	D501	D4	IC002	B55	L802	A17	Q362	C29	Q6520	D39	R145	B5	R451	C5	R639	B11	R989	E29	R2324	E62	R3193	E60	R6553	C45
C004	B1	C324	D22	C578	D24	C1812	D67	C2333	E62	C6509	A38	D530	D2	IC005	C22	L804	A19	Q363	C14	R008	A51	R146	B6	R452	D6	R640	B11	R990	D26	R2325	E62	R3194	E58	R6554	A41
C005	D24	C330	B51	C602	B7	C1813	E23	C2334	E61	C6511	C48	D531	E2	IC006	E50	L805	A23	Q451	C51	R009	B18	R151	A1	R453	C5	R722	D4	R991	D26	R2326	D61	R3195	E59	R6555	A41
C006	C56	C332	E21	C604	B11	C1814	E24	C2335	E63	C6513	C38	D532	E3	IC007	C23	L806	B23	Q501	E5	R010	B52	R152	A1	R454	D5	R723	B7	R1601	D55	R2327	D62	R3196	E59	R6556	C43
C010	C23	C351	D30	C605	B11	C1815	A67	C2336	E63	C6514	B38	D533	D2	IC101	A3	L808	B23	Q502	D2	R011	C51	R202	A2	R455	C5	R724	B8	R1602	D55	R2331	D63	R3197	E59	R6557	D43
C011	A51	C352	D30	C607	B10	C1816	D67	C2337	D60	C6515	C38	D534	D2	IC101	B3	L810	B21	Q503	D3	R013	B51	R301	C9	R456	C7	R751	D13	R1603	E55	R2332	E63	R3198	E60	R6558	E39
C012	C53	C353	B16	C610	A10	C1817	C67	C2351	C57	C6516	C46	D540	D49	IC301	B9	L811	B20	Q504	D51	R014	B51	R302	B9	R457	C7	R752	D12	R1604	E54	R2333	D63	R3290	C15	R6559	C41
C013	C53	C354	B16	C611	A11	C1818	B66	C2352	C57	C6517	A39	D541	D50	IC301	C2	L812	B20	Q505	E2	R015	E51	R303	C13	R458	D6	R755	D13	R1605	D54	R2334	D63	R3291	C14	R6560	E39
C014	C23	C355	C16	C612	A10	C1819	E24	C2353	D57	C6519	C46	D542	E2	IC451	C6	L813	B23	Q551	E6	R016	E51	R304	C13	R460	C6	R756	E13	R1606	D53	R2335	E62	R3293	C14	R6561	C41
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C017	B51	C358	B15	C616	B10	C1822	D66	C2356	D57	C6522	C46	D552	E8	IC751	D12	L954	E29	Q603	A9	R019	A50	R307	C12	R469	C6	R760	A23	R1609	E55	R2338	E61	R4311	A65	R6564	D42
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C049	B24	C467	C51	C809	A24	C2116	B70	C3006	A34	C6544	D24	D830	B24	IC6505	D23	L6505	C38	Q1802	E66	R050	C51	R348	A7	R534	E2	R808	A23	R1829	B67	R3016	C35	R6505	A43	R6589	C46
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C054	D53	C503	D3	C813	A20	C2119	B71	C3009	B62	C6547	D42	D837	C50	JK3001	A62	L6510	B41	Q1805	B68	R055	C52	R352	B16	R537	D2	R812	C50	R1871	C38	R3019	D35	R6508	A42	RL001	B18
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C085	C23	C508	D3	C821	B23	C2126	B69	C3071	C34	C6553	D23	D2302	C60	JK3001	B62	LC6504	D23	Q2331	D60	R060	D51	R357	A15	R544	D51	R821	B50	R2109	C69	R3026	A63	R6513	C48	S004	B49
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C104	E24	C514	E5	C824	B20	C2202	B61	C3074	A63	C6556	D23	D3001	B34	JK3001	E36	LC6507	C48	Q2334	E63	R064	C53	R360	A15	R552	D19	R824	A21	R2112	B70	R3031	A35	R6516	A46	S007	B49
C105	B3	C521	C1	C834	A17	C2203	B60	C3075	B63	C6557	D24	D3002	A63	JK3001	E36	LC6508	B54	Q2335	D61	R066	C54	R363	B15	R556	D9	R826	B21	R2113	B70	R3033	A36	R6518	C37	SP1	C64
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C115	B2	C532	D1	C904	E21	C2207	B60	C3079	A63	C6561	A38	D3009	B63	JK3004	D36	LC6512	A42	Q3051	B36	R081	C54	R369	C27	R560	C55	R831	B21	R2118	C70	R3038	C35	R6522	C48	T502	E4
C116	B1	C534	D1	C952	E22	C2208	B59	C3080	B63	C6562	D39	D3011	E35	L001	C56	M013	A17	Q3052	B36	R082	D53	R370	C27	R561	A30	R832	B19	R2119	C70	R3039	C36	R6523	A39	T551	C10
C135	B4	C535	E2	C953	D26	C2210	B60	C3083	E35	C6563	D40	D3012	E35	L008	C23	M017	C55	Q3053	B37	R083	D53	R371	B16	R563	C9	R833	B20	R2121	C71	R3040	A36	R6524	A46	T801	A22
C140	B6	C540	D50	C954	D27	C2211	B60	C3084	E35	C6580	D22	D3014	E35	L010	E53	Q001	B18	Q3191	E60	R085	C39	R372	B16	R564	C9	R835	B22	R2122	A69	R3051	B36	R6525	C46	V1	C31
C153	A2	C541	D50	C958	B24	C2212	A58	C3085	E35	C6581	D23	D3071	C34	L012	B53	Q014	C54	Q3192	E59	R086	D53	R373	C16	R565	C9	R836	B22	R2123	A69	R3052	B35	R6526	C47	X001	D52
C154	A2	C542	D50	C959	D28	C2213	B58	C3151	D36	D002	B18	D3072	C34	L013	B53	Q015	D53	Q4309	A65	R087	D53	R374	A29	R566	D18	R837	B22	R2124	C71	R3053	B36	R6527	A46	X101	B1
C202	B4	C545	E2	C961	D29	C2214	A59	C3152	E35	D004	C56	D3073	C34	L015	A53	Q102	B4	Q4310	A66	R088	D54	R375	B29	R569	D20	R839	C50	R2127	C71	R3054	B36	R6528	A46	X102	B3
C207	B3	C549	B9	C962	E28	C2215	B60	C3153	C35	D005	C23	D3074	C34	L016	B53	Q140	B6	Q4311	B66	R089	C22	R376	C29	R571	E4	R918	D27	R2129	C70	R3055	B35	R6529	B39	X201	A3
C208	B3	C551	E8	C964	D29	C2216	A58	C3154	D35	D011	D19	D3075	C33	L017	B55	Q141	B6	Q4312	B66	R091	C22	R377	A29	R602	A9	R952	D27	R2201	B58	R3056	B36	R6530	B39	X501	C3
C209	B3	C552	E8	C966	E29	C2219	A58	C3155	D35	D014	C24	D3078	E34	L103	B3	Q142	B5	Q4313	C66	R102	B1	R378	B29	R603	B11	R953	D27	R2202	B58	R3057	B36	R6531	A46	X601	B10
C210	B3	C553	D21	C967	E29	C2220	A57	C3192	D60	D015	C24	D3079	E34	L105	B3	Q301	A7	Q4315	E23	R103	B1	R379	C29	R604	C12	R954	D27	R2203	B59	R3058	B37	R6532	B39	X1801	D66
C212	A3	C554	E8	C968	D26	C2221	A4	C4301	E24	D097	C39	D3080	D34	L118	E23	Q303	C13	Q6501	C47	R112	C2	R380	A29	R605	C12	R955	D27	R2204	B59	R3065	B37	R6533	C38	X2102	A70
C301	A8	C556	E6	C969	E29	C2222	B57	C4302	E24	D098	C39	D3081	D34	L135	B4	Q304	C13	Q6502	A47	R113	B4	R381	B29	R606	C11	R960	D28	R2205	B59	R3073	C33	R6535	A39	X2103	B69
C302	B9	C557	E7	C970	D28	C2223	B57	C4303	C66	D302	D21	D3082	E33	L140	B6	Q305	B46	Q6503	C37	R114	B5	R382	C29	R607	A14	R961	B24	R2208	B58	R3075	A62	R6536	C38		
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C313	E21	C566	E19	C1804	C66	C2309	C64	C6501	E24	D364	C27	D3193	E20	L555	C7	Q355	B16	Q6512	D45	R129	A3	R391	C30	R616	A10	R970	D29	R2306	C63	R3153	E37	R6545	C46		
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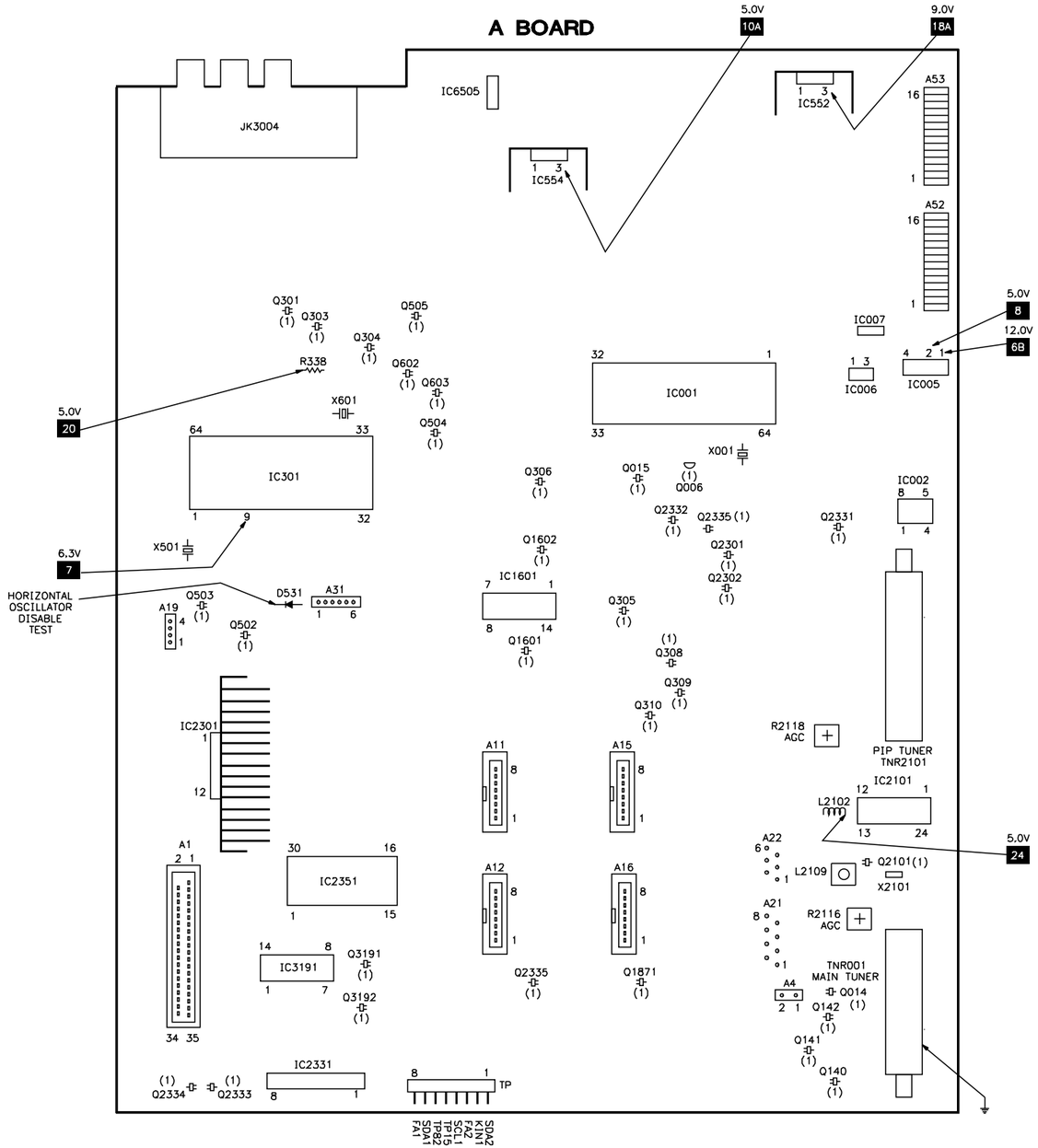
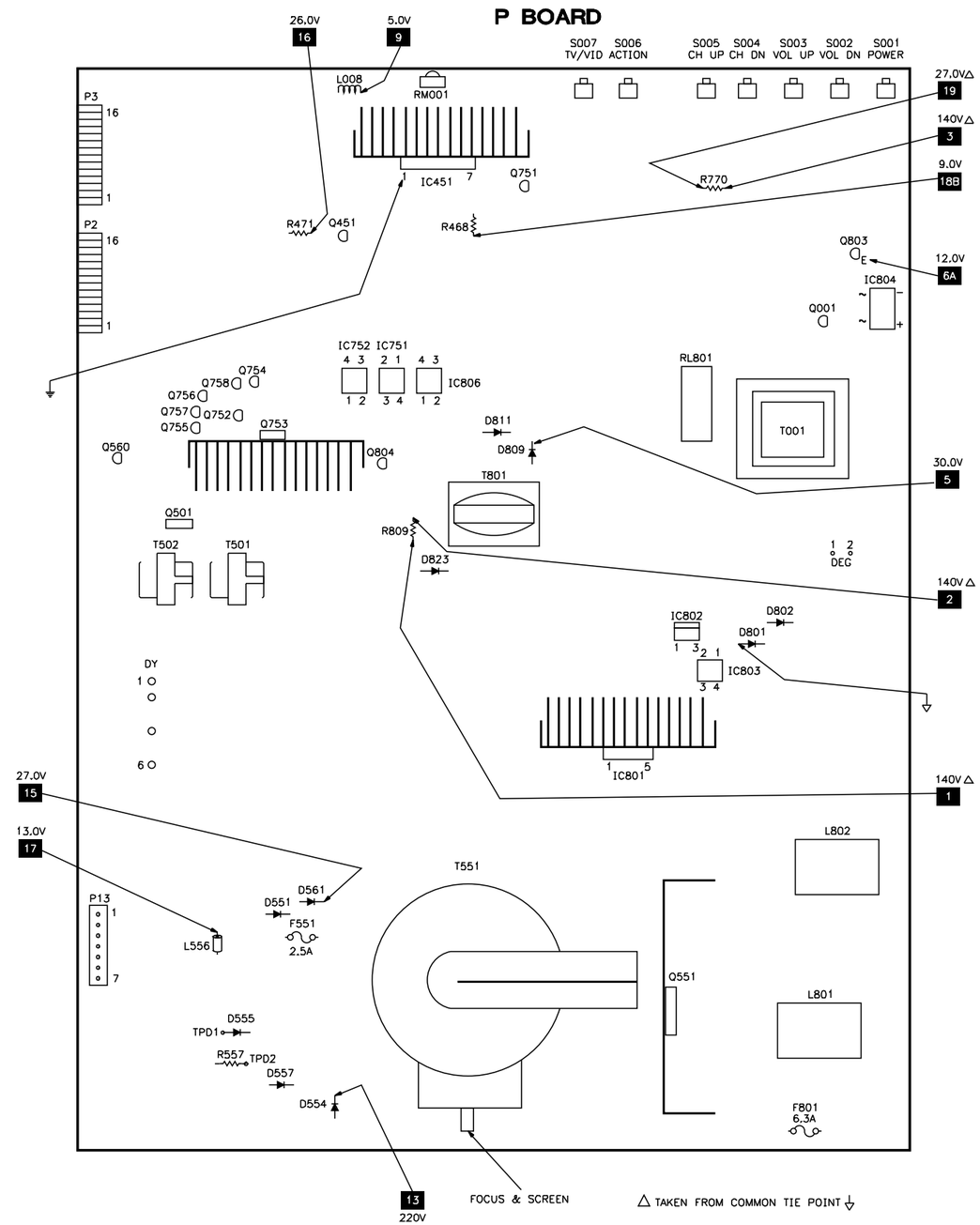
C316	C12	C572	E6	C1807	E67	C2312	C64	C6504	D24	D368	B15	D6502	B43	L601	B11	Q358	B29	Q6516	E39	R141	B6	R395	D21	R622	B9	R973	E29	R2311	D61	R3189	D61	R6549	D45		
C317	B8	C573	E19	C1808	E24	C2313	C63	C6505	A38	D369	C15	F551	D19	L602	C12	Q359	C29	Q6517	A37	R142	B6	R401	C1	R623	B10	R974	E29	R2312	D62	R3190	E60	R6550	D45		
C318	E21	C574	E21	C1809	E24	C2314	C61	C6506	C37	D455	C6	F801	A17	L751	E15	Q360	B29	Q6518	C47	R143	C6	R405	C5	R625	A9	R987	D26	R2321	D60	R3191	E60	R6551	C46		
C319	B47	C576	D24	C1810	B67	C2331	D63	C6507	A38	D456	C51	IC001	A52	L801	A17	Q361	C29	Q6519	D39	R144	B5	R408	C4	R626	B8	R988	D26	R2323	D60	R3192	E60	R6552	D45		

PLACEMENT CHART

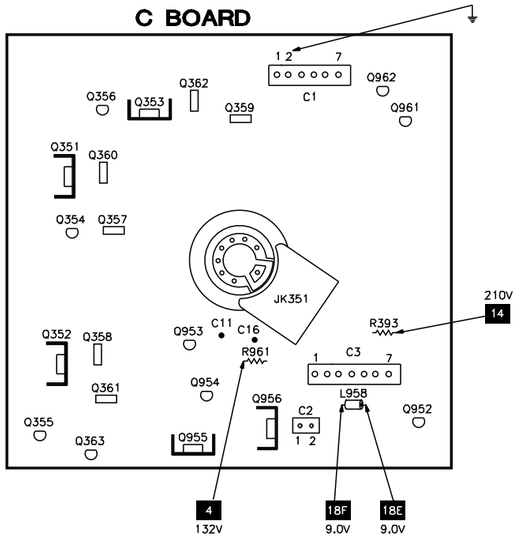




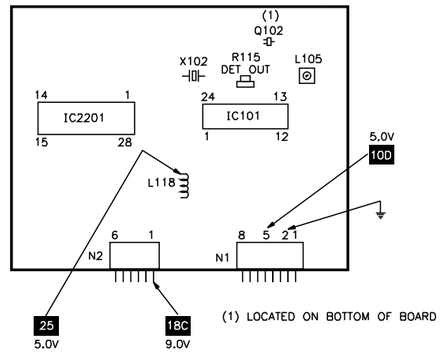
(1) LOCATED ON BOTTOM OF BOARD

PLACEMENT CHART continued

C BOARD

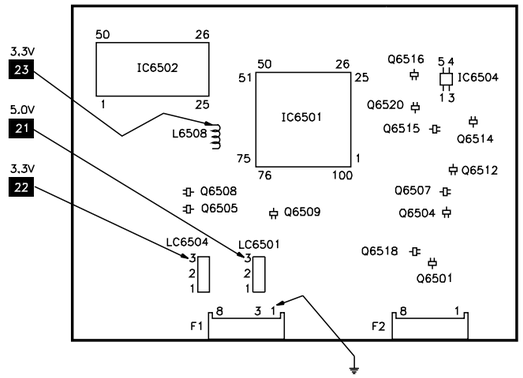


N BOARD

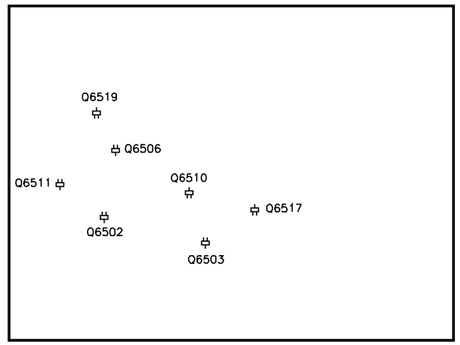


(1) LOCATED ON BOTTOM OF BOARD

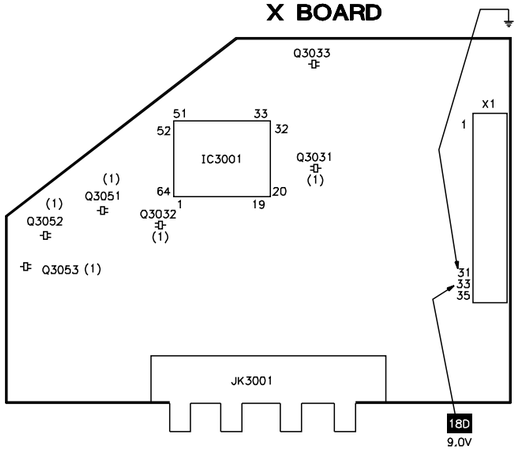
F BOARD - TOP VIEW



F BOARD - BOTTOM VIEW

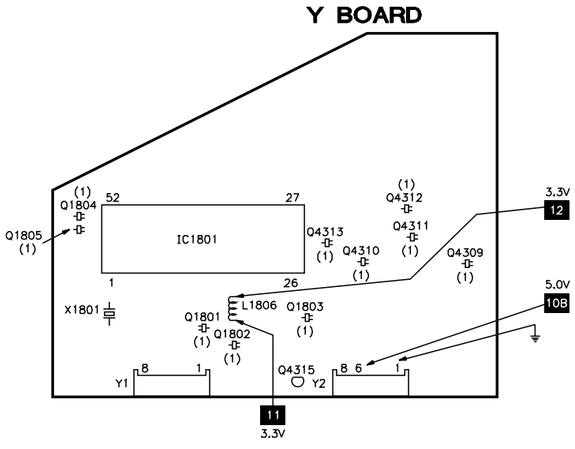


X BOARD



(1) LOCATED ON BOTTOM OF BOARD

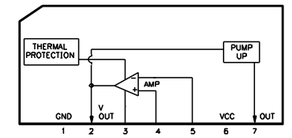
Y BOARD



(1) LOCATED ON BOTTOM OF BOARD

IC FUNCTIONS

IC451
LA7845N



IC801
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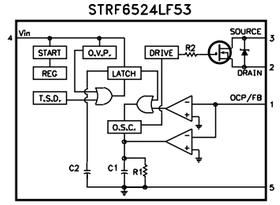
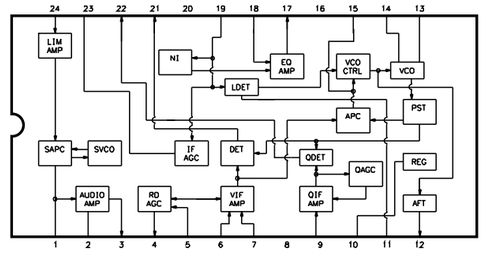


IC101, IC2101
AN5170K



PANASONIC

MODELS CT-27SF35W, CT-27XF35CW (CHASSIS AMEDP323)

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TEST EQUIPMENT

Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	Sencore No.
Oscilloscope	SC3100
Generators	
RGB	CM2125
Multiburst Signal	VG91
Color Bar	VG91
TV Stereo	VG91
Digital VOM	SC3100
Frequency Meter	SC3100
Hi-Voltage Probe	HP200
Accessory Probes	TP212
Isolation Transformer	PR570
Capacitance Analyzer	LC102
CRT Analyzer	CR7000
AC Leakage Tester	PR570
Inductance Analyzer	LC102
Flyback Yoke Tester	TVA92
Field Strength Meter	SL753
Transistor Tester	TF46
Horizontal Analyzer	HA-2500
Video Analyzer	VG91, TVA92

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a **#** to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- NTE Electronics, Inc. (NTE)
- Sencore, Inc.

PARTS LIST

	Item No.	Type No.	Mfr. Part No.	NTE Part No.
	D002	-	MA165	NTE519
	D004	-	MA4330H	-
	D005	-	MA4056M	-
	D011	-	MA165	NTE519
	D014, 15	-	MA4051M	NTE5010A
	D097, 98	-	MA165	NTE519
	D302	-	MA4051M	NTE5010A
	D351 Thru			
	D356	-	MA165	NTE519
	D361, 62, 64	-	MA165	NTE519
	D366	-	MA165	NTE519
	D367, 68, 69	-	MA4056H	NTE5011A
	D455	-	ERA15-01	NTE552
	D456	-	MA165	NTE519
	D501	-	MA165	NTE519
	D530	-	MA4039H	-
#	**D531**	-	ERA22-04	NTE552
#	**D532**	MA4062LTV	MA4062L	NTE5012A
	D533	MA29Q-A	MA29Q-ATA	-
	D534	-	MA4047M	NTE5009A
	D540	-	MA4047M	NTE5009A
	D541	-	MA165	NTE519
	D542	-	MA4082M	NTE5016A
	D543	-	MA165	NTE519
#	**D551**	RU2N	TVSRU2N	NTE552
#	**D552**	-	RS3FS	NTE552
#	**D553**	TVSRU3AN	TVSRU3ANV	NTE580
#	**D554**	-	BYD33G-143	-
	D555	-	MA165	NTE519
	D556	-	MA4360H	-
#	**D557**	-	AU02	NTE552
#	**D561**	-	BYD33G-143	-
	D752	-	MA2270B	-
	D753, 54	-	MA165	NTE519
	D755	-	MA29W-ATA	-
#	**D801, 02**	RM10B	TVSRM10B	NTE125
	D806	-	MA4047H	NTE5009A
	D807	-	MA165	NTE519
#	**D809**	RU3YX	RU3YX-M	NTE588
#	**D811**	-	AU02A	-
	D820, 21	AG01	AG01V0	-
	D822	AU01	AU01Z	NTE552
#	**D823**	-	RL30A	-
#	**D825**	SR2KL	TVSSR2KL	-
#	**D830**	-	MA4330M	-
	D832	-	MA4200M	-
	D835	-	MA4100H	-
	D837	-	MA4100M	NTE5019A
	D838	-	MA165	NTE519
	D955	-	MA29W-BTA	-
	D957	-	MA165	NTE519
	D2102	-	MA4330H	-
	D2302, 03	-	MA165	NTE519
	D2360	-	MA165	NTE519
	D3001, 02, 04	-	MA3110M	-
	D3006, 07, 09	-	MA3110M	-
	D3011, 12, 14	-	MA3110M	-
	D3071 Thru			
	D3075	-	MA3110M	-
	D3078, 79	-	MA3110M	-
	D3080, 81, 82	-	MA3110M	-
	D3151, 52, 53	-	MA4110M	-
	D3156, 57, 58	-	MA4110M	-
	D3191, 92, 93	-	MA4110M	-

	Item No.	Type No.	Mfr. Part No.	NTE Part No.
	D4301	-	MA3036H	-
	D6501, 02	1SS355	1SS355TE-17	NTE519
	IC001	-	MN102L35GTA	-
	IC002	-	24LC08BIP	-
	IC005	-	PQ05RD1B	-
	IC006, 07	-	MN1280-R	NTE15044
	IC101	-	AN5170K	-
#	**IC301**	-	AN5308NK	-
	IC451	-	LA7845N	-
#	**IC552**	-	AN7809	NTE1910
#	**IC554**	-	AN7805	NTE960
#	**IC751, 52**	-	PC817X2	-
#	**IC801**	-	STRF6524LF53	-
#	**IC802**	-	SE139NLF4	-
#	**IC803**	-	0N3131R	NTE3098
	IC804	-	TVSS1WBS20	-
#	**IC806**	-	0N3131R	NTE3098
	IC1601	-	TC4066BP	NTE4066B
	IC1801	M65617SP-A	M65617SP	-
	IC2101	-	AN5170K	-
#	**IC2201**	-	AN5819K	-
	IC2301	-	AN5275	-
	IC2331	-	BA15218N	NTE778S
	IC2351	-	AN7396K	-
	IC3001	-	CXA2079Q	-
	IC3191	-	MC14066BCP	NTE4066B
	IC6501	-	MN8283	-
	IC6502	-	TVSA0274	-
	IC6504	PST9128	PST9128NR	-
	IC6505	-	PQ3RD13B	-
	Q001	-	JC501PQ	NTE85
	Q014	2SD601A	2SD601ARTX	NTE2408
	Q015	2SD601A	2SD601ARTX	NTE2408
	Q102	2SD601A	2SD601ARTX	NTE2408
	Q140, 41	2SD601A	2SD601ARTX	NTE2408
	Q142	2SB709A	2SB709ARTX	NTE2409
	Q301, 03	2SB709A	2SB709ARTX	NTE2409
	Q304, 05, 06	2SD601A	2SD601ARTX	NTE2408
	Q308	2SB709A	2SB709ARTX	NTE2409
	Q309	2SD601A	2SD601ARTX	NTE2408
	Q310	2SD601A	2SD601ARTX	NTE2408
	Q351, 52, 53	2SC3063RL	2SC3063	NTE157
	Q354, 55, 56	-	JC501PQ	NTE85
	Q357, 58, 59	2SC3063RL	2SC3063	NTE157
	Q360, 61, 62	2SB1011RL	2SB1011	-
	Q363	-	JA101PQ	NTE290A
	Q451	-	JA101PQ	NTE290A
	Q501	2SC4212HLB	2SC4212H	-
	Q502 Thru			
	Q505	2SD601A	2SD601ARTX	NTE2408
#	**Q551**	2SD2539LB306	2SD2539306	-
	Q560	-	JA101PQ	NTE290A
	Q602, 03	2SB709A	2SB709ARTX	NTE2409
	Q604	2SD601A	2SD601ARTX	NTE2408
	Q751	-	JC501PQ	NTE85
	Q752	-	JA101PQ	NTE290A
	Q753	2SD1267APLB	2SD1267AP	NTE377
	Q754	-	JA101PQ	NTE290A
	Q755, 56	-	JC501PQ	NTE85
	Q757, 58	-	JA101PQ	NTE290A
	Q803	2SC1383	2SC1383NC	NTE293
	Q804	2SA1767QTA	2SA1767Q	-
	Q952, 53	-	JC501PQ	NTE85
	Q954	-	JA101PQ	NTE290A

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PARTS LIST continued

Item No.	Type No.	Mfr. Part No.	NTE Part No.
Q955	2SB1569AF51	2SB1569AF51E	-
Q956	2SD2400AF51	2SD2400AF51E	-
Q961	-	JC501PQ	NTE85
Q962	-	JA101PQ	NTE290A
Q1601, 02	2SD601A	2SD601ARTX	NTE2408
Q1801, 02, 03	2SD601A	2SD601ARTX	NTE2408
Q1804, 05	2SB709A	2SB709ARTX	NTE2409
Q1871	2SB709A	2SB709ARTX	NTE2409
Q2101	2SD601A	2SD601ARTX	NTE2408
Q2301	2SB709A	2SB709ARTX	NTE2409
Q2302	2SD601A	2SD601ARTX	NTE2408
Q2331	2SD601A	2SD601ARTX	NTE2408
Q2332	2SB709A	2SB709ARTX	NTE2409
Q2333, 34	2SD601A	2SD601ARTX	NTE2408
Q2335	2SB709A	2SB709ARTX	NTE2409
Q3031	2SB709A	2SB709ARTX	NTE2409
Q3032, 33	2SD601A	2SD601ARTX	NTE2408
Q3051, 52	2SD601A	2SD601ARTX	NTE2408
Q3053	2SB709A	2SB709ARTX	NTE2409
Q3191, 92	2SD601A	2SD601ARTX	NTE2408
Q4309	2SB709A	2SB709ARTX	NTE2409
Q4310	2SD601A	2SD601ARTX	NTE2408
Q4311	2SB709A	2SB709ARTX	NTE2409
Q4312, 13	2SD601A	2SD601ARTX	NTE2408
Q4315	2SC1384	2SC1384Q	NTE293
Q6501, 02	2SD601A	2SD601ARTX	NTE2408
Q6503	2SB709A	2SB709ARTX	NTE2409
Q6504 Thru			
Q6508	2SD601A	2SD601ARTX	NTE2408
Q6509	2SB709A	2SB709ARTX	NTE2409
Q6510	2SD601A	2SD601ARTX	NTE2408
Q6511	2SB709	2SB709ARTX	NTE2409
Q6512, 14	2SD601A	2SD601ARTX	NTE2408
Q6515, 16	2SB709	2SB709ARTX	NTE2409
Q6517 Thru			
Q6520	2SD601A	2SD601ARTX	NTE2408

	Item No.	Function/Rating	Mfr. Part No.	Notes
	C016	.47µF 50V NP	ECEA1HNR47U	-
	C301	47µF 16V NP	ECEA1CN470U	-
	C309	1µF 50V NP	ECEA1HN010U	-
	C351	.001 10% 2kV	ECKD3D102KB	-
	C352	1µF 50V NP	ECEA1HN010U	-
	C402	1µF 25V Tantalum	ECSF1EE105	-
	C403	.33µF 35V Tantalum	ECSF1VE334	-
	C456	2pF 50V NPO	ECCF1H020CC	-
	C504	220pF 5% 50V N750	ECUX1H221JUX	-
#	**C531**	33µF 50V	ECA1HM330	-
#	**C551**	.01 5% 1.2kV	ECWH12H103JS	-
#	**C552**	.033 5% 400V	ECQM4333JZ	-
#	**C553**	2700µF 20% 16V	ECA1CM272	-
#	**C554**	820pF 10% 2kV	ECKD3D821KB	-
#	**C556**	.001 5% 2kV	ECKD3D102JB	-
#	**C557**	.001 5% 2kV	ECKD3D102JB	-
#	**C558**	220µF 16V	ECA1CM221	-
#	**C559**	.39 5% 250V	-	-
		.39 5% 200V	ECWF2394JBB	-
#	**C560**	4.7µF 50V NP	ECEA1HN4R7U	-
#	**C563**	2200µF 16V	ECA1AM222	-
#	**C565**	10µF 250V	ECA2EM100	-
#	**C566**	1000µF 16V	ECA1CHG102B	-
#	**C569**	330µF 35V	ECA1VM331	-

	Item No.	Function/Rating	Mfr. Part No.	Notes
#	**C572**	470pF 5% 2kV	ECKD3D471JB	-
	C604	2.2µF 50V NP	ECEA1HN2R2U	-
	C607	9pF ±.5pF 50V NPO	ECUX1H090DCX	-
	C615	33pF 5% 50V NPO	ECUX1H330JCX	-
#	**C801** Thru			
#	**C804**	.0047 500V	ECKD2H472PU	-
#	**C805, 06**	560µF 20% 200V	EC0S2DA561BB	-
#	**C809**	330µF 20% 200V	EC0S2DA331BB	-
#	**C810, 11**	.015 20% 250VAC	ECQU2A153MN	-
	C817	470pF 10% 1kV	ECKD3A471KB	-
	C818	.001 10% 2kV	ECKD3D102KB	-
	C819	100pF 10% 1kV	ECKD3A101KB	-
#	**C822**	2200µF 35V	ECA1VM222	-
#	**C823**	33µF 160V	ECEA160V33Z	-
	C824	.0015 5% 1kV	ECKD3A152KB	-
#	**C834**	.22 20% 250VAC	ECQU2A224MV	-
#	**C840**	100µF 160V	ECA2CM101	-
	C2201	3.3µF 16V Tantalum	AP335K016CAE	-
	C2219	10µF 16V Tantalum	AP106K016CAE	-
#	**C2222**	.0047 10% 50V	ECUX1H472KBX	-
#	**C2223**	.01 10% 50V	TCUX1H103KBN	-
	C2375	22µF 16V NP	ECEA1CN220U	-
	C4307	10µF 16V NP	ECEA1CKN100	-
	C6517	3.3µF 50V NP	ECEA1HN3R3U	-
	C6521	4.7µF 50V NP	ECEA1HN4R7U	-
#	**CRA801, 02**	Capristor	EXNG131P365	130pF 125VAC, 3.6M, Spark Gap
	D850	2.9 Cold PTC/68.5 Cold PTC	TAP107M003	-
#	**F551**	Fuse	TSF39252	2.5A, 125V
#	**F801**	Fuse	XBA2A00101	6.3Amp, 125V, Fast Acting
	JK3001	Jack	TJB2AA0121	Assembly
	JK3004	Jack	TJB2AA0131	Assembly
	L001	39µH	ELESN390KA	-
	L008	47µH	TLUABT470K	-
	L010	Ferrite Bead	TSKA074	-
	L012, 13	10µH	TLUABTA100K	-
	L015, 16	10µH	TLUABTA100K	-
	L017	Ferrite Bead	TSKA074	-
	L103	15µH	ELESN150JA	-
	L105	VCO	EIV7EN053B	-
	L118	-	-	-
	L135	56µH	ELESN560JA	-
	L140	33µH	ELESN330JA	-
	L355, 56	39µH	ELESN390KA	-
	L357	27µH	ELESN270KA	-
	L358	27µH	ELESN270KA	-
	L359	18µH	ELESN180KA	-
	L360	10µH	ELESN100KA	-
#	**L551**	Horizontal Linearity	TLH6626P	-
	L554	Ferrite Bead	EXCELSA24T	-
#	**L555**	Yoke	KDY4UW739F	Horiz 1.2mH, Vert 20.3mH
	L556, 57	Ferrite Bead	TSKA072	-
	L601	82µH	ELESN820KA	-
	L602	4.7µH	ELESN4R7JA	-
	L751	Top/Bottom Phasing	TLH15733M	-
#	**L801, 02**	Line Filter	ELF18D850C	-
	L804	Ferrite Bead	TSKA076	-
	L805	Line Filter	ELC08D470F	-
	L806, 08	Ferrite Bead	TSKA074	-
	L810, 11	Ferrite Bead	TSKA074	-
	L812	Ferrite Bead	TSKA076	-
	L813	Ferrite Bead	TSKA074	-
#	**L814**	Degaussing	0LK19045A	-
	L953, 54, 58	Ferrite Bead	TSKA074	-
	L1801	1.5µH	ELESN1R5KA	-

PARTS LIST continued

	Item No.	Function/Rating	Mfr. Part No.	Notes
	L1803	2.2µH	ELESN2R2K	-
	L1804	15µH	ELESN150KA	-
	L1806, 07	1µH	ELESN1R0KA	-
	L1808	Ferrite Bead	EXCELDR25	-
	L2102	10µH	ELESN100KA	-
	L2103	15µH	ELESN150JA	-
	L2104	33µH	ELESN330JA	-
	L2105	1.2µH	ELESN1R2KA	-
	L2106	56µH	ELESN560JA	-
	L2107	1.2µH	ELESN1R2KA	-
	L2109	VCO	EIV7EN053B	-
#	**L2201**	1000µH	ELESN102JA	-
#	**L2202**	470µH	ELESN471JA	-
	L2302	Ferrite Bead	TSKA074	-
	L4301	3.9µH	ELESN3R9KA	-
	L6501	4.7µH	ELESN4R7JA	-
	L6502	10µH	ELESN100JA	-
	L6503	33µH	ELESN330JA	-
	L6505	22µH	ELESN220JA	-
	L6507	12µH	ELESN120JA	-
	L6508, 10	2.2µH	ELESN2R2KA	-
	L6511	15µH	ELESN150JA	-
	LC6501	Filter	TAX10075	-
	LC6502, 03	Filter	TAX10073	-
	LC6504	Filter	TAX10075	-
	LC6505 Thru LC6512	Filter	TAX10073	-
#	**M013**	Line Cord	TSX2AA0011	AC, Polarized
	M016	Push Terminal	TJS2AX00401	Center Channel Speaker
	M017	2 RF Splitter	ENPE623	-
	R032	10K 1% 1/4W	ER0S2CKF1002	-
	R040	120 1% 1/10W	ERJ6ENF1200	-
	R041	1200 1% 1/10W	ERJ6ENF1201	-
	R064, 66	120 1% 1/10W	ERJ6ENF1200	-
	R082	1600 1% 1/10W	ERJ6ENF1601	-
	R083	680 1% 1/10W	ERJ6ENF6800	-
	R115	3000 Detector Output	EVND2AA03B33	-
	R304	1650 1% 1/10W	ERJ6ENF1651	-
	R325	5600 1% 1/10W	ERJ6ENF5601	-
	R327	2200 1% 1/10W	ERJ6ENF2201	-
	R348	560 1% 1/10W	ERJ6ENF5600	-
	R350	680 1% 1/10W	ERJ6ENF6800	-
	R393	100 1% 1/2W Fusible	ERQ12AJ101	-
	R468	4320 1% 1/4W	ER0S2CKF4321	-
	R469	1470 1% 1/4W	ER0S2CKF1471	-
#	**R515, 16**	3900 5% 3W	ERG3FJ392H	-
#	**R531**	47 5% 1/4W	ERD25FJ470	-
#	**R532**	24.3K 1% 1/10W	ERJ6ENF2432	-
#	**R533**	2740 1% 1/10W	ERJ6ENF2741	-
#	**R552**	1 5% 1/4W	ERD25FJ1R0	-
#	**R558**	1000 5% 1W Fusible	ERQ1CJP102	-
#	**R561**	2.4 5% 2W Fusible	ERQ2CJ2R4	-
#	**R566**	1 5% 1/2W	ERDS1FJ1R0	-
	R569	18 5% 3W	ERG3FJ180	-
	R760	5600 5% 5W	ERG5ZXJ562	-
	R764	10 5% 2W Fusible	ERQ2CJP100	-
	R770	10K 5% 3W	ERG3FJ103	-
#	**R801**	1 10% 7W Wirewound	ERF7ZK1R0	-
#	**R802**	8.2M 20% 1/2W	ERC12ZGM825	-
	R804	100 5% 5W	ERG5FJ101	-
#	**R818**	.22 10% 1W Fusible	ERQ1CKPR22	-
#	**R819**	3.3 5% 1/4W	ERD25FJ3R3	-
	R960	10 5% 1/4W Fusible	ERQ14AJ100	-
	R961	330 5% 1W Fusible	ERQ1CJP331	-
	R2115	3000 Detector Output	EVND8AA03B33	-
	R2118	3000 AGC Delay	EVND8AA03B33	-
	R2208	91K 1% 1/10W	ERJ6ENF9102	-
#	**RL801**	Relay	TSEH0005	Power
	RM001	Receiver	RPM-637CBRS1	Remote
	S001	Switch	EVQPF106K	Power
	S002	Switch	EVQPF106K	Volume Down
	S003	Switch	EVQPF106K	Volume Up
	S004	Switch	EVQPF106K	Channel Down
	S005	Switch	EVQPF106K	Channel Up
	S006	Switch	EVQPF106K	Action
	S007	Switch	EVQPF106K	TV/Video
	SP1, 2	Speaker	TAS2AA0008	1 5/8" X 7 7/8", 8 Ohms, 10W
#	**T001**	Power	ETP28Z436AF	-
	T501	Horizontal Driver	ETH19Y70AYM	-
#	**T502**	Horizontal Coupling	ETE19Z30AY	-
#	**T551** (1)	Horizontal Output	KFT4AB139F	-
#	**T801**	Power	ETS29AK2K6PC	-
#	**TNR001**	Tuner	ENV56D36G3	Main
#	**TNR2101**	Tuner	ENV56D36G3	PIP
#	**V1**	CRT	M68LNK161X	-
	X001	Crystal	TSSA096	12MHz
	X101	Filter	M1972M	SAW
	X102	Filter	EFCWS4504AB	4.5MHz
	X201	Filter	EFCS4R5MS4W	4.5MHz
	X501	Crystal	TAFCSB503F38	503kHz
	X601	Crystal	TSS816MX	3.58MHz
	X1801	Crystal	TSSA050	-
	X2102	Filter	EFCWS4504AB	4.5MHz
	X2103	Filter	EFCKM1958M	SAW
		Corrector Strip	0FMK014ZZ	Convergence
		Magnet	ETC35C65NA	Purity/Convergence, VM Coil
		PC Board	TNPH0199AE	A
		PC Board	TNPA1128AC	C
		PC Board	TNPA1058	F
		PC Board	TNP2AA027AB	N
		PC Board	TNPH0200AC	P
		PC Board	TNPA1057	X
		PC Board	TNPA1059AC	Y
		Socket	TJS1A5211	CRT
		Transmitter	EUR511151	Remote
		Wedge	TMM2A30702	Yoke Positioning (3 Used)

 # For SAFETY use only equivalent replacement part.

(1) Screen and focus controls are part of T551.